DEATH & RESURRECTION

B. JÖRKLUND

11/24/27

1.25

Billy dear

Just a little

brochure appertaining

to "Reincarnation" in

a pigs knuckle

Semper fidelis

G. Bernard

DEATH AND RESURRECTION.

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GUSTAF JOHAN BJÖRKLUND

Death and Resurrection

FROM THE POINT OF VIEW
OF THE CELL-THEORY

BY

GUSTAF BJÖRKLUND

Translated from the Swedish by
J. E. FRIES

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PUBLISHERS' PREFACE.

NEVER in the history of human thought has the interest in the soul and its immortality been greater and keener than now. The leading investigators of the Society of Psychical Research have taken up the problem of enquiring into the facts of spiritual experiences, telepathy, forebodings and kindred phenomena. The result has been rather negative, for, while we have received innumerable single facts, they all suffer from the common fault that they are too subjective in their nature to furnish a proof that could be objectively valid. Moreover, many reports come from witnesses whose mental constitution is under the suspicion of being pathological, and so their value is practically null.

Of much greater importance would be an investigation as to the possibility of immortality on the basis of scientific data, but, strange to say, this method has been almost entirely lost sight of by leaders of the S. P. R. If we could form a definite theory as to the nature of the soul based on exact observation, we would be enabled, first, to explain man's instinctive yearning for immortality; and, secondly, to form a definite idea of the condition of the soul after death. Thus we could exclude all the many mistakes which are now made, and which originate through an erroneous and partly superstitious notion of the relation of the dead to the living. The result is shown in the reports of the S. P. R., abounding in statements of ghost stories, which can be regarded only as a continuation of folk-lore. As a matter of fact, the work of the S. P. R. has so far provided very little help toward a better comprehension of immortality.

Among the men who have done the

work of a sympathetic reconstruction of the idea of immortality on the basis of science, there is to be mentioned, next to Fechner, Gustave Björklund, a Swedish scientist who is well known in his own country, but who has been almost entirely ignored in other lands. The obvious reason of this is the inaccessibility of his writings, which have not yet been translated into English.

We do not believe Björklund's solution is the right one, but we do believe that he has made a contribution to the philosophy of religion which ought not to be ignored. His case is similar to Fechner's. We have published Fechner's book *On Life After Death* and we are glad to present the views of Björklund on *Death and Resurrection.*

Dr. Carus has sketched his views repeatedly in *The Soul of Man*, in *Whence and Whither*, and two articles published in *The Monist*, with special reference to Fechner. They show also why Björklund's belief is unacceptable.

Nevertheless we publish Björklund's book because we heartily sympathize with his endeavor to justify those sentiments which instinctively point out that death is not a finality, and that the purpose of life is not limited to the span of our days between the cradle and the grave, but that it has a further and fuller significance.

We hope that Björklund's book will be welcomed as the contribution of an earnest and prominent scientific thinker on the important question, "If a man die, shall he live again?"

THE PUBLISHERS.

TRANSLATOR'S PREFACE.

JOHAN GUSTAF BJÖRKLUND was born the tenth of November, in the year 1846. His parents were farmers in very small circumstances. His father seems to have been endowed with a good business head and, ultimately, became a real estate owner on a small scale, first in one city and then in Upsala, the principal university town of Sweden. Poverty was familiar to Björklund throughout his life. Doubt-

For the biographical data of Björklund's life I am indebted to S. A. Fries, D. D., well known in continental theological circles as a scientist of rank and founder of the international Congresses in the interest of the History of Religion. (See Theologische Literatur Kalender 1906; Wer ist's? 1908.) Dr. Fries, who is one of the leading ministers in Stockholm, has done more in speech and print than anybody else to introduce Björklund to the reading public.

less one reason for this was that his consuming interest in sociology and philosophy prevented him from taking those higher examinations, which in Sweden are indispensable for obtaining any official position. He studied, however, for several years at the University of Upsala, but followed no recognized course, and it was only because of the ardent persuasion of his friends that he took a degree as B. A.

In 1884, Björklund moved to Stockholm, where he remained until his death, in 1903. At the University of Stockholm, he took the courses in biology and natural science, and won for himself the admiration and lasting friendship of many of the professors of that institution. During this time he mainly supported himself by teaching philosophy, and among other pupils, afterward renowned, was Ellen Key, the well-known Swedish writer on sociology and the woman question. The most absorbing interests during this period were, however, sociology and the peace movement.

To broaden his views and study social conditions in general, Björklund undertook several protracted journeys to England, Germany, Belgium, and France.

From 1887, Björklund began to publish the fruits of his untiring labor. His first work was, "The Fusion of the Nations." In that, as in "The Anarchy of Evolution" and "Peace and Disarmament," Björklund throws his overwhelmingly convincing statistical resources and solid scientific learning in favor of an ultimate universal, but more especially European union of the nations. Toward this goal it is necessary to steer, according to Björklund, if a general "Anarchy of Evolution" is to be avoided; for that is the condition that will prevail, if the state neglects to carry out an organization of society that shall keep step with the degree of material culture reached. "Because during the most profound peace, a nation suffers from its own army the same impeding influences that in time of war is due to the hostile army."

The last mentioned book, "Peace and Disarmament," at once made Björklund famous. It was translated into French, German, English, Polish, Dutch, Hungarian and several other languages, and would no doubt have brought its author a Nobel prize, had it appeared fifteen years later. Björklund was now elected an honorary member of the Swedish Peace Society. At the Peace Congress in Bern (1892) his treatise, "The Armed Peace," was distributed in English, German and French, and the Italian Society, "Unione Operaia Umberto I," subsequently elected him an honorary member.

In his later years Björklund devoted less time to active work in the universal peace movement. He became more absorbed in scientific research and the problems of philosophy. An important impulse to his later development, he received from a book, "Significance of Segmentation in the Organic World" (Stockholm, 1890). Here he was brought to serious consideration of the nature of

the cell and of its place in life. In the organization of the cells in a human body Björklund saw an example of a universal law, governing all life. With this thought as a starting point, he undertook to investigate the problem, all-important to his philosophy, of the awakening of self-consciousness in a cell-organization and the relationship between this newborn ego and the cells themselves, each of which, to a certain degree, leads an independent life.

The result of his studies was first made known in 1894 in a treatise, "The Relation Between Soul and Body from a Cytologic Point of View." In the year 1900, he published the volume herewith presented to the American public, in which he has partly rewritten the former book, and further added his latest conceptions of the nature and evolution of life.

This work is undoubtedly one of Sweden's most remarkable and interesting contributions to contemporary philosophy. It is also the last work from Gus-

taf Björklund's hand. In July, 1903, his earthly existence was brought to an end, and he was "fully translated" to that spiritual world, the existence of which he was so thoroughly convinced

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It is true that the philosophical structure that Björklund so successfully commenced to upbuild is far from complete. But the basis he laid is solid and will serve as a foundation for many temples of the future, whether they who worship therein believe in Björklund's God or not.

This foundation is the fact overwhelmingly proved by Björklund, that life is not a quality in matter or physical force, but must be of immaterial origin and substance. Granting that time as well as space are forms in which matter and physical force are comprehended by man on his earthly stage of consciousness, Björklund has also demonstrated the immortality of life. For if life be a reality, which is not here denied, with no roots in matter or physical

force, whether these are identical or not, this reality exists outside of the forms, time and space, in which matter appears. But whether matter and physical force exist per se, or are mere transient phenomena or what their origin and purpose is, these are questions that Björklund never was granted the time to discuss.

Björklund's grand conception of the relationship between all living beings and their organic upbuilding of larger conscious units, where each individual of higher order is the sum total of all its constituent members of lower order, is certainly a most helpful and inspiring addition to our theory of evolution.

But the question why an evolution is necessary at all for beings that are constituent members in The Perfect Being, is hardly satisfactorily answered by Björklund. His ingenious explanation, fully presented toward the end of this volume, still leaves us in a dilemma. Björklund holds that Perfect Love has

left it to time-existent beings to become of Free Will what they of eternity have been to the All-Spirit; much as a child, unless considered merely a mechanical toy, must of free will, grow into the man that his father preconceived and all the time sees in it. But even so we are left between Scylla and Charybdis, for either this evolution has a purpose, which must be reached outside of time—that is, it will come to a standstill; an ending in Nirvana—or else evolution is everlasting, without final purpose, and its proper name—delusion. Again the time-bound mind meets in this, as well as in every ethical or metaphysical problem, if it be pushed to its ultimate consequences, the same conflict or irrationality that is destined to baffle the space-bound man, whether his microscope is restlessly at work to solve the riddle of the divisibility of matter, or his telescope sweeps the heavens in a vain search for the utmost star. This irrationality, that everywhere surrounds

us, is a chasm that only religion can bridge. From a philosophical point of view, therefore, we must be satisfied if our workable hypotheses in philosophy and in natural science do not contradict each other; and Gustaf Björklund has shown us a road to reconciliation between idealism and natural science, that for a long time seemed entirely lost in the jungle of the materialism of the last century.

J. E. FRIES.

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DEATH AND RESURRECTION.

All are but parts of one stupendous whole,
Whose body Nature is, and God the soul;

. . . . . .

All Nature is but Art, unknown to thee;
All Chance, Direction, which thou canst not see;

. . . . . .

And spite of Pride, in erring Reason's spite,
One truth is clear, Whatever is is Right.

—Alex. Pope.
Essay on Man, Epistle I.

CHAPTER I.

Old Conceptions of a Future Life.

A CONSCIOUSNESS of immortality, sometimes dim and vague, sometimes vivid and clear, seems to be characteristic of the human race. However low man may stand he cannot consider death to be the end of his existence. The conviction that he is immortal is innate to him. Annihilation is contrary to the nature and demands of his spirit. It is true that uncertainty and doubt might arise, but man will never be able wholly to uproot either hope or fear as to the possibility of a future life.

Experiencing such feelings and presentiments, man finds himself amidst a world where death and dissolution everywhere surround him. He sees the

objects of his love or fear pass away, and he knows that sooner or later the same fate will befall himself. When he beholds the lifeless body of some near relative, his presentiment of immortality tells him that the selfsame soul that once animated that body is still alive. In such moments even the man of low cultivation is forced into more or less profound contemplation. The following reflection impresses itself with might and wonder upon him: "I feel convinced that the dead is living, but how can he live without his body and what form does his new life take?"

In all ages and stages, men have asked the same or similar questions, and they will go on asking them as long as belief in a future life obtains.

But man does not confine himself to questioning, he wants answers, and especially must this be true where the reply is so intimately connected with himself. And these answers have not been lacking; we find them formulated in those opinions and theories respect-

ing a future life which throughout the ages have gradually appeared and prevailed.

The critically thinking public of the present day takes a decidedly skeptical attitude toward all these theories. They assert, and not without strong arguments, that it is impossible to know anything. But, however convinced the public may be of the fruitlessness of discussing the topic, no one will succeed in pushing it entirely aside. Time and again the same questions reappear as dark and threatening clouds on the horizon of our consciousness; they occupy our thoughts, take hold upon our feelings and color our sentiments. It would undoubtedly be sufficient at such moments to have, were it only one fixed point to stand upon; one established fact to start from and which we could trust would lead our thoughts in the right direction. But such a basis to set out from we have not hitherto been able to find. Will this remain the case forever? Will science

concerning a future life always fail to attain aught but negative results? Let us say at once that humanity will probably be able to ascertain as much as it may be necessary or useful for us to know in this world. This hope is founded on our firm belief that at this time a basis such as that above mentioned really exists. Natural science has furnished this basis, though nobody as yet has happened to reflect that the facts upon which this basis rests may have any bearing upon our attitude toward a future life, much less give answer to questions such as the following: How, and in what way, is man to pass from this life into another?

It will be the object of the following pages, then, to develop further the view just intimated.

In prehistoric times men believed in a close relationship between the soul of the deceased and his body in the grave, and this purely instinctive faith is the more remarkable, as it prevailed during stages of civilization when differentia-

tion between spiritual qualities and physical matter was almost unknown.

The contradistinction between soul and body is certainly a fact, a general experience. But neither the individual nor the race realizes this fact suddenly or all at once. The knowledge of the distinction between the physical and the spiritual sphere, with their different characteristics and qualities, proceeds step by step, being the result of slowly advancing evolution.

The child and the savage remain unconscious of any discrimination between soul and body, and even for the more cultivated man, the border between the two is vague and undetermined. According to the psychologic order of man's evolution we might therefore expect that the problem as to this relationship would appear at a comparatively late date, and even then be of importance only to a reduced number of more cultivated individuals. But, on the contrary, experience shows that this question occupies the thoughts

of men in very low stages of civilization, and, in fact, that it is of the most general interest.

The reason for this evidently lies in the instinctive belief that the body contains something which is immortal, and which in the life hereafter the soul cannot dispense with.

In its first historic form the question concerning the soul's relation to the body deals with this relation after, not before, the separation of the soul and body. This latter problem emerges only in very high stages of civilization, and even then is of scientific interest to an insignificant minority only, while the question of our existence after death is religious in its nature and of interest to all.

In olden times men were more fully convinced of a continued personal existence after death than civilized mankind seems to be nowadays. The same vivid conviction we find even in our age among people in the natural state. From the prehistoric peoples we have

no written communication, but from their graves they speak to the present day intelligibly and plainly of their belief in a life to come. Behold the monuments defying time and decay, which these people have erected in memory of their deceased. The sepulchres of the Egyptian kings to this very day arouse our amazement and admiration.

What was it, then, that induced these peoples of early times to bestow such extraordinary labor on the places of their last rest? It certainly was their belief that the graves contained not only the lifeless body, but also the living soul. The funeral ceremonies evidently show, as Fustel de Coulanges says, that when the body was laid in the grave it was thought that something yet alive was placed there at the same time. The soul was born simultaneously with the body; death did not separate them; they were both enclosed together in the grave. In olden times people felt so fully assured that a man lived in the tomb, that they never

failed to bury with him the things of which he was thought to be in want. They poured wine on the grave in order to quench his thirst; they brought food to his tomb in order to appease his hunger; they killed horses and slaves, believing that, if enclosed with the dead, these would serve him in his grave as they had served him during his life.

It was also in this conviction that the positive duty of burying the deceased originated. In order to bring rest to the soul in the subterranean dwelling that fitted its new existence, it was necessary that the body, to which, in some way or another, it still clung, should be covered with earth. The soul, denied a grave, had no dwelling. Drifting about, it sought in vain the desired rest after life's fitful struggle. Without shelter, without offerings or food, it was condemned to everlasting wandering. Therefore, because the deceased was unhappy, he became ill-natured. He tormented the living; sent

them diseases; destroyed their harvests; haunted them in uncanny visions in order to remind them of their duty to bury the body and thereby secure peace for himself.

The old authors give evidence of the degree to which people were vexed by fear that proper ceremonies would not be observed at their burial. It was a constant source of grievous irritation. The fear of death was less prevalent than the fear of being left unburied. Naturally so, for it was a question of eternal happiness. It should therefore not surprise us so much when we see the Athenians execute generals, who, after a naval victory, had neglected to bury the fallen. These generals, disciples of the philosophers of their time, did not believe that the fate of the soul was dependent on that of the body. They had therefore decided not to challenge the tempest for the empty formality of gathering and burying the fallen. But the masses, even in enlightened Athens, still clung to the old

conceptions, and accused the generals of godlessness, sentencing them to death. By their victory they had saved Athens, but by their negligence they had brought perdition upon thousands of souls. "These conceptions," says Fustel de Coulanges, "have governed man and society through many generations, and have been the source from which the larger part of ancient domestic and public institutions were derived."

But this is not all. The primitive ideas, referred to above, obtain even today among various nations and tribes all over the earth. From the islands in the Pacific Ocean all the way up to the Polar regions we meet with the same creeds among uncivilized peoples, the same or similar manner of burial as among the ancients.

If we were going to illustrate this, the Chinese probably would be the first to attract our attention, not only because of the antiquity of their civilization, but because of their great num-

bers. As is well known, a third part of the world's population is Chinese. Most of the characteristic peculiarities of this enormous community must be attributed to their death-cultus.

Every family in China lives in continuous communication with its ancestors, upon whom are bestowed offerings of fruit, grain, rice or vegetables, according to the products of the soil of their home. The soul will lose none of its qualities through the separation from the body. In company with other souls of their kindred it hovers over the family, partakes of their sufferings, rejoices in their happiness. If forgotten, it grows melancholy and ill-natured, it complains in doleful voice and its moans are ominous. Woe unto him who ignores these obligations. The offerings to the souls of his forefathers must not be neglected. Their memory must not be allowed to fade away. But who is going to attend to these sacrifices and memorial observances if the family dies out? Matrimony, therefore,

becomes a sacred duty, the foremost of all duties.

To the Chinese mind there is no grievance greater, no punishment more terrible, than expulsion from the family. What would become of a man's soul if his nearest of kin would curse his memory? To rid himself of such a sickening dream he is ready to sacrifice everything, even life itself. But only when the body is brought to rest in the family grave can the soul enjoy the care of its kindred. It is obvious, then, that emigration is looked upon with great apprehension by the faithful Chinaman. He must either return home during his life or else arrange that his body be brought back if death should overtake him while abroad. We know that the big transoceanic steamship companies faithfully carry out this part of their contracts with those of their Chinese passengers who meet with unexpected death in America.

Similar ideas are to be found among the negroes of Africa and Australia,

and among the Indian tribes of America. These also supply their deceased with such tools and provisions as they are supposed to need in another world.

Among the Arctic peoples the same customs and usages prevail. When an Eskimo is about to die, he is dressed in his best clothes and his knees are drawn up under him. The grave is lined inside with moss and a skin, over which stones and peat are spread. If the dead is a man, his boat, weapons and tools are laid beside the grave; if a woman, her knife and sewing utensils; if it is a child, the head of a dog is placed on top of the grave, that the soul of the dog may show the helpless child a road to the second life. If a mother dies while nursing a babe, it is, as a rule, buried alive with her.

In a Samoyede grave, Nordenskold found among other things parts of an iron pot, an ax, a knife, a drill, a bow, a wooden arrow, some copper ornaments, etc. Even rolls of birch bark were found in the coffin, in all proba-

bility to be used for making fire in another world. Beside the grave a sleigh was placed upside down, evidently in order to provide a vehicle for the deceased, and we may assume that reindeers were slaughtered at the funeral.

The essential, fundamental thought in this conception which causes the uncultivated peoples in our days to treat their deceased in the same way as the ancients did, is the belief that the body contains something which the soul cannot do without in the future life. Soul and body are and remain a unit even beyond the grave. As death means a violent tearing apart of these two factors, the soul cannot be wholly satisfied without its natural relationship to the body.

It is evident, therefore, that to the ancient world life in the lower regions seemed dismal and repulsive. Achilles would rather be a day-laborer on earth than king of the hosts in Hades. Life there passed in a shadowy inactivity amidst all wealth, a desolate emptiness

in all superfluity, so that the soul could not help but suffer a ceaseless regret whether it moved in the halls of Valhalla or in the Elysian fields. Glorious meadows, crystal waters, streams of milk and honey, could not obliterate the craving of the soul for its corporeal existence. It returns time and again to the body in the grave to enjoy the sacrifices and cares of the surviving.

This mourning for the body and continuous longing for the sunny life on earth made death seem something terrible that fretted and tormented men. Was it not natural, then, that the mental disharmony caused by the thought of death, should sooner or later bring about a reaction; give birth to the hope of a reunion of the soul with the body on a resurrection day of the dead? At some such conclusion several religions have arrived. We need mention only the Norse sagas, Islam, Parseeism and Judaism. A resurrection, everywhere taught in almost identical terms, is placed at the end of the present system

of the world in connection with a cosmic catastrophe out of which new heavens and a new earth with an ennobled humanity will emerge.

The bodily resurrection on the day of judgment is a doctrine also in the Christian faith, as it is interpreted by the orthodox creeds. But this dogma has entirely lost its former authority. It is repeated at each Church burial, but the reading has now become a mere formality. We do not believe any more in a resurrection in the old sense.

What factor in our time has been sufficiently powerful to overturn conceptions so deeply rooted in human nature? It is the scientific spirit as acknowledged even by faithful theologians. Science has shown that man's body is renewed several times during life and that even the bones, placed in the grave, soon "arise" through nature's forces themselves and take part again in the universal circulation of matter. In face of all the evidence for this truth, it is impossible to believe

in the old doctrine of a physical resurrection.

Another question is, whether this ancient belief could disappear without leaving traces in contemporary consciousness. Can man have changed so radically in a century, or rather in a few decades, that the conviction of the body's importance to the soul after death will no longer find an echo in his religious instincts? By no means. We are the same human beings and have the same human nature as our forefathers. Forms of conception may go, but not the instincts to which they once gave a satisfactory expression.

We may therefore rest assured that the important change of attitude in this question forcefully reacts on religious life in our day. The reaction does not necessarily mean progress at first. Evolution does not follow a straight line; a step forward is generally immediately followed by phenomena in the opposite direction.

The religious instincts, underlying

the conception of the body's importance to the soul in a future life, must create new expressions, and the logic of the old conceptions themselves indicates what forms they would take.

When the belief in a restoration of the union between the two factors in a human being was suddenly and almost violently shaken by natural science, there seemed at first no other way out of the difficulty than to choose between them and declare either the soul or the body as the essential part.

Those who felt inclined toward the former alternative evidently found themselves confined to a one-sided idealism of little vitality, because an existence without body seems as shadowy and unsatisfactory to man in the present as in ancient times. An increasing weakening of the intensity of religious life would be the natural consequence.

Those again who, because of a more realistic tendency, insisted upon the essentiality of our body, were logically

driven to a gross materialism. If science had proved that the belief in a bodily resurrection is untenable, why should it not be able to demonstrate that all religious doctrines were delusions? This reasoning seemed to many so natural that many scientific facts contributed evidence in their favor even when these facts pointed entirely in the opposite direction.

There was, however, no necessity to think and reason as these two main schools in our age have done. One might also from the beginning, have taken the same road and arrived at the same conclusion as, for instance, Granfelt in his "Christian Dogmatic." "It has been demonstrated beyond doubt by natural science," says this prominent theologian, "that the matter of a human body is, even here on earth, in continuous circulation, so that in the course of a few weeks all atoms of the whole body are replaced by new atoms. The only lasting attribute of the soul during this process is the spiritual body,

which assimilates, typically forms, and again secretes the earthly matter. It must be this spiritual body, then, that constitutes the combining element between man's earthly body and his glorified body in the eternal life."

Christianity speaks not only of a material resurrection on the day of judgment; it also says that man possesses within him a spiritual body, which after death immediately arises to everlasting life. This latter conception is not confined to Christianity. In all religions we find two tendencies side by side, the one idealistic and the other more realistic, which indeed are not really opposed to each other, inasmuch as the belief in a spiritual body may be said to constitute the basis even for the realistic conception that places the spirit in co-relation with the body in the grave.

The idealistic tendency may be traced away back even to prehistoric times and has generally been connected with some other burial methods, among

which cremation was the most common. The place cremation occupied in ancient thought and the connection fancied by our forefathers between the elements which make up man's spiritual body, may be gathered from Victor Rydberg's researches in Germanic mythology.

"The popular ecclesiastical dualism of soul and body," says Rydberg, "was as foreign to the Veda-Aryans as to the heathen Germanic race. According to the latter, man consisted of six different elements: First, the earthly element of which the visible body is made; second, a vegetative; third, an animal; fourth, the so-called *liten* (*litr*), an inner body shaped after the gods, and invisible to earthly eyes; fifth, the soul; sixth, the spirit."

The earthly and the vegetative elements were already joined in the trees, Ask and Embla, when the gods came and changed them into the first human pair. Each of the three gods gave them separate gifts. From Lodur they re-

ceived *la*, that is the blood, and *laeti*, that is the power of intentional movement inherent in the blood, which attributes have been considered by all peoples as the characteristics that distinguish animal from vegetable life. Lodur gave them further the god-image, *liter goda*, by the power of which man's earthly substance receives the form in which it appears to the senses. The Germanic race, like the Hellenes and the Romans, believed that the gods had human form, so that this form originally belonged to the gods. To the Germanic hierologists and bards man was formed *in effigiem deorum* and possessed in his nature a *liter goda*, a god image in the literal sense of the word.

This image may for a short time be separated from the other human elements, so that a person may assume the appearance of another without changing his spiritual identity.

The soul, *odr*, is the gift of Höner, while the spirit, *önd*, is the contribution of Odin.

Earthly death consists in the separation of the higher elements, spirit, soul and *liten*, which form a unity for themselves, from the lower elements and a removal of the former to Hades. The lower elements, the earthly, the vegetal and the animal, continue in the grave for a longer or shorter time to co-operate and form a certain unity, which, from the higher elements, retain something of the living man's personality and qualities. This lower unity is the ghost, the wraith, which usually sleeps during the day in the grave, but in the night might wake either spontaneously or by other people's prayers and sorcery. The ghost possesses the nature of the deceased; it is good and benevolent, or evil and dangerous, according to his disposition. Because animal and vegetal elements form part of his nature, he is tormented by a craving for nourishment if he wakes from his slumber.

These conceptions of a dualistic life after death, common among the Veda-

Aryans, as well as among the heathen Norsemen, were closely allied with the idea of cremation. *Agni*, the god of fire, removed the dead man to a better world, while the coarser body, with its faults and defects, was consumed by the flames.

It was a matter of doubt, however, whether *liten*, the inner body, would suffer injury in the pyre. But this doubt was removed partly by certain formulas, believed to be protective; partly by burning a buck together with the body as compensation to the "flesh-eating fire," the elementary Agni (the hymns distinguish between the two), so that he should not touch the subtler body of the corpse. Through the combustion, the lower elements were enabled to immediately follow the soul of the deceased, and it was thought that two advantages were gained thereby: First, the second ego of the dead was liberated from its grave-dwelling, which was monstrous if his sleep were disturbed either by craving for nourish-

ment or through the acts of Nirrtis and sorcerers; second, the surviving were relieved from their dread of evil ghosts.

CHAPTER II.

Man's Spiritual Body.

IF WE survey the stages of evolution through which humanity hitherto has passed, we find that all peoples, from prehistoric times up to our own days, have believed in a spiritual body which is essential to the soul in a future life. Is humanity then mistaken in this universal manifestation of religious intuition? On this question we need no longer remain uncertain, no longer believe; *we know* that man possesses such a spiritual body. For many years, even centuries, this has been a fully demonstrated fact, which may be directly observed, and which also has been the subject of scientific research.

But what do we mean by spiritual body? The term conveys something of

a dim and vague, and at the same time unmistakable suggestion which characterizes all we comprehend by our emotional faculties. Spiritual body means what the words say, a spirituality derived from, or belonging to, the body. But as no spirituality exists which is not individualized or is not a quality of a living being, this spiritual body must be identical with either one single unit or with a multitude of living units. One single unit it cannot be, because this unity would then be identical with the soul, while on the contrary, the spiritual body should be independent, existing *per se.* It remains then a multitude of spiritual units, which is precisely what natural science has proved to be the case, *and these units in man's spiritual body are identical with the living cells.*

Before the discovery of the cell, our knowledge of the human body was confined to such phenomena as could be observed with the naked eye. The organism from that standpoint was neces-

sarily a unit of members and organs whose functions, and even coarser anatomic structure, were beyond any accurate investigation. The elementary parts of the organic tissues cannot, of course, be observed in this stage. They appear first under the microscope and it is therefore with the discovery of this epoch-making instrument that the science of organisms enters into a new era.

Toward the end of the seventeenth century, Malpighi and Grew found that organic tissues, placed under the microscope, did not consist of homogeneous substance as they appear to the naked eye, but of small particles separated from each other, which particles have been called cells. But although the cells were discovered, their real importance was far from being understood, or even surmised. This was no doubt the reason for the small interest given to the cell during the eighteenth century, and the small progress cytology made during this whole period.

From 1670 to 1830, or more than a century and a half, the cell was known mainly as a saccate body, resembling a hollow tube, and became the subject of more or less wild speculations. A wider interest for the substance and nature of the cell was evoked in the beginning of the nineteenth century by the works of Brisseau de Mirbel, Treviranus, Moldenhaver and several others. Many different parts began to be distinguished within the cells, such as membrane, protoplasm, chlorophyll, etc. These parts were later found to be as many organs in the cell performing different functions, which are at present to some extent defined. The cell previously considered as a saccate body proved to constitute a being endowed with organs, a living organism.

According to modern cytology, the cell is a living individual; an elementary organism. Although these beings are so exceedingly minute that the naked eye can observe them only in combinations of thousands and millions,

yet each and every one of them not only possesses individual life, but also the organs necessary for sustaining individual existence. Innumerable quantities of such tiny beings build up the organisms of plants and animals. As human individuals form the building material of the body of a community, so the cells form the building material of the bodies of plants and animals. Since the cells bear the same relation to plants and animals as human individuals to a community, every plant and animal then may be considered as a community, a cell-state, where the cells are the citizens.

Every organism, therefore, is a community, and vice versa, every community is an organism. So far as we have knowledge of the organisms they are all similar in this respect. Plants and animals are communities of individually living cells in the same sense as nations and states are communities of human beings. The individuals in these different communities are of different kinds and

degrees of development, but the composition of the organic edifice is in all essential features exactly the same. The differences are literally only apparent, being due as they are to the different aspect they present to our observation.

While we at first apprehend animals and plants as units, not seeing the individual cells by which they are composed, we, in the national organisms, on the contrary, first perceive the cells themselves—the human individuals—but are unable to grasp the nations as individually living organisms. On the one hand we see directly only the social side, on the other, only the organic.

If there are beings observing the human community as we see plants and animals, they would comprehend society as a unit composed of different trades and industries, but not as composed of men, who are the building material in these members. If such postulated observers made an invention corresponding to our microscope, they

would be surprised to find the social organism composed of human individuals, which fact would seem just as mystical to them as the cells seemed at first to us. So far as we have derived from experience a knowledge of organic structure, it reveals itself to us as *an individual composed of more primitive and elementary individuals.* These elementary units of lower kind and order might consequently be called a spiritual body in a literal sense.

From the point of view of the elementary constituent, each organism is a community, a unit of similar, independently living, individuals; from the point of view of the organs and of the whole, this community itself is a living individual of higher potency and may in its turn enter as an elementary organism in a spiritual body of still higher power, and so on, in a geometric series. Man enters into the social organism, but is himself composed of cell-organisms, which in turn consist of more primary units.

Organic structure shows everywhere the same general qualities, the same fundamental features. Each higher and more complex organism repeats in a more perfect way and in a higher potency exactly the same general forms of organization as its elementary constituents have shown in their own sphere. Hence the surprising similarity in the structure of the organisms. When we know one we know all. This would, of course, be neither possible nor conceivable if the spiritual bodies, which form their corporal structure, did not possess corresponding similar fundamental qualities.

In what relationship do these cells stand to man? Do they enter into his being as essential or only as incidental constituents? In other words, does man act as organ for the cells and the cells as organs for man only here in time; or, such existence being for the present postulated, is their union extended even to a future existence? This question is of extraordinary importance be-

cause it may entirely change our conception of death. With this question settled, we should be in possession of a fact from which we could draw reliable conclusions, and this fact is briefly as follows: Within each living being a continuous renovation takes place, a successive replacing of the individuals which belong to that being's spiritual body. Human beings constitute, as already pointed out, the cells or the spiritual body, in an organism of a higher order, viz., of humanity. In this organism, an incessant renewal takes place, as we know, inasmuch as new generations continuously succeed each other. The same is the case with man's own spiritual body. As the human generations in the social body, so the cell-generations in man's body replace each other while the man, himself, all the time, remains the identical individual. The same holds good in regard to the cytoplasm, or the lower units that build up the cells. Everywhere we meet with the same phenomenon of re-

newal and everywhere with the same identity of the complex individual. This latter originates, develops, and passes away with a lifetime that bears a certain proportion to its complexity. While man counts his existence and development in years, the evolution of society is reckoned in hundreds and thousands of years. The cells in their turn have a lifetime measured in days, and the units forming the cytoplasm possess an individual existence perhaps lasting but a few minutes or seconds.

The circulation in the body, therefore, is not confined to the material particles but comprises the spiritual body, the living units, as well. Now, the question is: What is the relationship between man living in time and these dying and unborn generations of cells, that form his body? Can we show that these living units, this spiritual body, is as necessary for man in a future existence as here in time? Then death must evidently be something else, something infinitely more than we have

hitherto imagined or surmised. The point is to investigate what is mortal in man and what is immortal, and on this problem we will now proceed to concentrate our whole attention.

CHAPTER III.

Source of Spiritual Knowledge.

THE CRITICALLY thinking public to-day might be said to have long ago relinquished the hope of obtaining a sure and decisive answer to the question, whether there is an existence beyond the grave. Some people confine themselves to a faith founded on a smaller or greater probability for either conception. We want palpable evidence. To many it even appears necessary to have a look behind the veil of visible matter in order to satisfy themselves as to whether anything exists within the void. "Nobody has returned to tell us how it is," we are often reminded, and this expression clearly means that complete certainty requires the testimony of eye-witnesses.

Such a procedure would be at least

radical if it were possible. But even if it were, should we then be nearer the goal? The whole mode of thinking is naïve, but merits attention especially because it demonstrates how uncertain the information would be that we would obtain through this channel. If somebody returned, little or nothing would, in all probability, be gained.

In the first place how could we know that it was the same person that returned? It would, perhaps, be best if the soul took possession of the same body. The absence would then be comparable to, or essentially analogous with, the condition of the apparently dead. But to begin with, we could, for good reasons, only ascribe a small value to experience gained under such conditions, and, further, such an absence would evidently mean no real separation of soul and body, no real death, and therefore no real experience of the very thing under consideration.

But how, and under what conditions,

would an event of this kind be conceivable?

Should the person in question suddenly disappear from our sight and then just as suddenly reappear among us? Endowed with his present organs and senses, which are closely adapted to earthly conditions, such a person could see and comprehend only such objects as differed little or non-essentially from those in the world where we now live. He would possibly be able to observe conditions on other planets in the universe, but he would be utterly unable to comprehend the things of a world abstracted from the limitations of planetary life. If such a world exists, and some one of us were suddenly removed to it, such a one, amidst all glories with seeing eyes, would yet see nothing; with hearing ears, hear nothing; and with feeling senses, feel nothing. In order to see and grasp what may exist and happen, the observer himself must have gone through a corresponding radical change. The con-

ditions for the functioning of bodily organs do not exist there. He must develop new and more perfect senses; higher, spiritual and bodily faculties which differ from his present ones as much as the objects of this higher world differ from the things of earth.

A direct transposition would therefore be without value. In order to make investigations, a radical metamorphosis is an indispensable condition. The soul must be separated from its earthly clothing and pass through all the transformations which commence with natural death. In order to return here, this person must again go through the same processes in reverse order. At his re-birth upon earth he would not, in all probability, differ from other people. He would know as much or as little as we do.

But even if we assume the improbable and imagine that this person returned to us with the memory of all he had lived through and that he tried to relate his impressions and experiences,

such a report would be of no use because it would deal with ideas and conceptions entirely incomprehensible to us. The explanation of this is that man is unable to comprehend things and phenomena which have not acted upon his present organs. If we take pains to analyze our boldest and most unrealistic fancies, we will find that their substance and ingredients are only greatly enlarged or reduced images of an already experienced reality. We have never possessed that man's higher senses, never experienced the things which those higher faculties are able to grasp, and we are therefore not in a position to form any idea whatever about such a world. His speech would sound like a foreign language that we could not possibly ever learn to understand.

Only in case the person in question could adapt himself to our present way of thinking and understanding, would such a revelation be of any importance. But then again the question arises,

what confidence could we have in this man who pretended to possess knowledge about things entirely concealed from us? We have no means of verifying the information thus received. It must be taken in good faith, and so the gates to doubt would again be thrown open. If someone returned, then, little or nothing would be gained. In this, as in other cases, there is no royal road to truth. Only a painstaking research will lead to the goal, if indeed it can ever be attained.

The question is, can investigation in this direction accomplish anything? If so, we must at least not entertain or present any unreasonable demands. Such an unreasonable demand would be, for instance, to expect science to explain the concrete forms which life would take in a transcendental world, No man ever has or ever will make such observations. It is even questionable whether such knowledge would be useful or beneficial to us if obtained. We have enough to occupy us in our

daily cares and earthly tasks. A complete knowledge of life in a future existence would probably disturb and distract us to such a degree that we would lose interest for our present evolution in this existence. It may be sufficient for us to know whether there be another life, and if so, whether our dealings and actions in the present life are of any importance for that life. It would, no doubt, suffice if we could acquire a knowledge with regard to that life corresponding to what we know about those distant worlds in space which we discern with our bodily eyes and which we further investigate with our astronomical resources. The following conditions must be fulfilled in order to make the cases similar: First of all, such a transcendental world must exist, and emit rays of light. Further, we must be equipped with some special organ, a spiritual eye, which we could direct towards it and by which we could make our investigations here on earth. Do we possess

such a spiritual eye? We answer that our conscience, our religious intuition and the eternal and invariable laws of thinking are just such organs. That an ideal world exists, radiating a light of its own, we are able to conclude from perceptions received through our conscience and our religious intuition.

Our conscience gives us rigorous directions and commandments, which sometimes seem to counteract our earthly happiness and show themselves detrimental to our present success. If our life were confined to this world, the demands of our conscience were not only useless and injurious but also in themselves inexplicable. That man, in his religious intuition, also apprehends a reality of a different kind from the material one, appears from the fact that all peoples, in all times and in all stages of evolution, have possessed a religion, as we now do, a certain conception of supernatural things. It may be granted that a great amount of delusion enters into all religions. Never-

theless, religious errors would be inconceivable if man did not apprehend something supernatural which he wrongly interpreted. Superstition would not exist at all, because, as we have already pointed out, nobody can think, speak or form any idea whatever of things that are entirely beyond all experience. To argue with a person about such never-apprehended realities, would be like discussing colors with the blind. But now it is a fact that apprehensions of immaterial substance are so common to man's consciousness that if we could find somebody who did not understand what we said and meant in speaking about these things, we should be safe in asserting that such a man was not a normal person.

But if all men have an immaterial experience, why do ideas and opinions differ so about the same experience, and above all why do some people even deny its existence? The explanation of this surprising contradiction may be understood when we consider that man

also possesses a special faculty, his reason, which he must likewise employ. With his reason, man examines and studies all his experiences and strives to bring them into agreement with the laws of thinking. In other words, he strives to systematize them into a philosophy. But this is a hard and laborious task. It is difficult as it is to arrive at right conclusions in regard to the material world to which our senses are responsive. How much more must this be the case in regard to the immaterial world. The evolution of our reason, therefore, is a slowly advancing historical process, presenting a continuous change in opinions, although, at the same time, an inner continuity may be traced, an evolution pointing towards a definite goal.

The harmony which man is striving to establish between his reason and his other faculties can obtain only during comparatively short intervals of time. Our reason grows in power and keenness; new observations and discoveries

are almost constantly made; old ideas and opinions do not, upon closer investigation, satisfy the more developed demands of our thinking; doubts arise, and this is a necessary condition for all theoretical progress. Such a doubt, not of the immaterial experience which we all have, but of the way in which this experience is to be explained, has been expressed in the theory called materialism, which is a widely spread doctrine in our time. Natural science in itself is never materialistic in the sense in which this word is here used, because natural science does not concern itself with anything immaterial. But if this be the case, how is it possible that science can have anything in common with materialism which, strictly speaking, is a doctrine about spiritual things? We answer that life in this world is joined to and revealed through the material world. A more complete knowledge of the nature of matter ought, therefore, to bring about a decision by and by as to whether the soul

is a bodily function or a substance differing from matter. In other words, natural science must sooner or later arrive at a stage when it either verifies materialism or gives us tangible and obvious evidence for the truth of idealism. It was to such a point that science arrived in the last century when Büchner presented his well known "Force and Matter," in which he endeavors to prove that the soul is an attribute of the body, religion, immortality and so on being only illusions.

Had natural science then finally found materialism to be the highest expression of truth? In reality this was so far from being the case, that natural science, just at that time, had given entirely new impulses to a higher evolution of religious conceptions. How then could Büchner, with natural science as a basis, deny all religion, and how can materialism, in our days, live with undiminished force and vitality? No other explanation is possible than the one we have already proposed. When

it remained unnoticed that natural science had discovered the inner, spiritual body, which is the very kernel of the belief in the body as an eternal part of man's nature, then materialism was the only possible alternative for all those who were convinced that the body contained something imperishable. Materialism, in our days, springs from the same instinct as the death-cultus in ancient times. It has, therefore, integrally, something correct and true as a basis, which not only explains the rapid and wide expansion of this doctrine, but also the fact that the materialists are continually using data and evidence which clearly and plainly disprove their own position, although they do not perceive it themselves. As probably no one has treated this theme in a manner more characteristic of materialism than Büchner, we will, in the following study, use his work above mentioned, which may be said to be typical for the materialist's mode of thinking and reasoning. It will here

be evident, we hope, that the modern natural science does not limit but, on the contrary, widens the boundaries of existence, as we receive from precisely this science the palpable demonstration of the thesis that all life on this earth has its origin in a higher, immaterial world.

CHAPTER IV.

Importance of Spontaneous Generation.

THE MANNER in which this problem, from a materialistic point of view, can and must be treated, is not so complicated as we might imagine. The central thought in all materialistic discussions and investigations may be briefly expressed as follows: Life is a material force and nothing else. If this be true, then of course materialism is the only true religion. Whether God or some other higher being exists, must then become a question of little or no consequence. Man knows in any case his own origin and fate. The fundamental religious doctrines will then read: In matter alone dwell all the forces of nature and spirit; in matter alone can these forces appear and reveal themselves; nature knows of no

supernatural beginning or continuation; it produces everything; consumes everything; is itself beginning and end, cradle and grave; by its own power nature produces man, by its own power it receives him back again.

Against these and similar statements there would be no objection, if it could be shown that life really has its source in the material world. But if it can be demonstrated that life never does, nor ever could by any possibility, originate in lifeless matter, then it is evident that we must look for some other source.

Let it be our object, then, fully to investigate this problem.

If living beings are produced by material forces, experience must verify the fact that matter really creates life of itself. In other words, the "to be or not to be" of materialism is identical with the old question of *generatio aequivoca* or *spontanea*, i. e., whether there exists in nature a spontaneous or parentless generation of living beings.

Generatio aequivoca covers the entire ground of the materialists. Here the doctrine has not only its principal roots but all of them.

If the materialists lose this foothold, all their natural science resources are emptied at once, so important is *generatio spontanea* for materialism. Only under this form and with this substance can natural science have anything in common with materialism, which latter, strictly speaking, is only a religious doctrine, although as such purely negative. But just for this reason science has for centuries labored to decide whether this doctrine is false or true.

The question is, does or does not this spontaneous generation exist? Scientific research has, in all times, occupied itself with this question in different forms and modes.

The farther we go back in time the more general we find the opinion that life may arise spontaneously from inorganic matter. That such an idea

should prevail, is, of course, easy to understand. Very little was known about the propagation of the lower animals and plants. Especially the very peculiar and complicated development of the parasites and their passive migrations were practically unknown.

It seemed impossible to understand whence these beings had come, so the nearest explanation was resorted to, that is to say, that wherever they were found, they had come into existence "of themselves." Neither was it so clearly understood then as now that eggs and seeds are living beings as well as the fully developed animals and plants. It was thought that grain must decay in the earth, yea, that this was the necessary condition for the growth of the plant.

Thus people had daily before their eyes cases where living beings were generated by substances that seemed inert and dead.

But with a better and more complete knowledge of organisms and especially

of the extremely complicated mode of propagation characteristic of insects, doubts as to *generatio spontanea* increasingly arose. It was, however, at a comparatively late time, or in the middle of the seventeenth century, that Harvey formulated his famous thesis, "*omne virum ex oro*," or, as it has been later said, "*omne vivum ex vivo*," which we may translate thus: "*Life implies life; all living beings descend from previous existing parents*," or negatively, "*No living being is generated from lifeless matter.*" Thus, for the first time, the idea was pronounced by natural science that life is a specific force; an independent principle, that has not its roots in the material world.

As *generatio aequivoca* leads to materialism, so Harvey's formula leads to pure idealism. That these consequences should have been seen from the beginning, was so much the less to be expected since even today no such discovery has been made or could have been made, simply because no atten-

tion has been given to it. Hitherto the only question has been: Is Harvey's formula a fact verified by natural science or not? In this form the battle has raged for over two centuries, often with great vehemence, and victory has leaned now to one side, now to the other. Finally, it was agreed that parentless generation was not to be found among the higher forms of animals and plants which could be observed with the naked eye. Büchner himself says it has not hitherto been discovered that any higher or more developed organism may be created by inorganic matter and forces alone.

"Today," he says, "it seems to be a general law of the inorganic world that everything living originates from a parental embryo or else is directly segregated from the mother-body."

But although spontaneous generation of the higher animals and plants seemed doubtful even to Büchner, nothing was at this time settled in regard to the origin of the lower organisms.

With the discovery of the microscopical organic world, a new field and one more difficult of access was opened for research. It was now the sudden and unexpected appearance of bacteria, aspergillus and infusoria in places where their previous existence could not be imagined, that maintained the belief in *generatio spontanea*. But by and by we learned to understand the propagation and life also of these low organisms, their ability to withstand very high or very low temperatures, and the facility with which they are spread by the air and, above all, their rapid propagation. It commenced to be more and more evident that even in the micro-organic world no parentless generation exists. The investigations by Spallanzani, and later by Schultze, Schwann, von Dusch and Schröder, were epochal for the establishing of this fact. Their method, however, left some room for criticism which was forcefully pointed out by a

great number of scientists, especially by the Englishman Needham.

During all these disputes Harvey's formula had, however, won such a stability and approbation that Büchner himself under its pressure formulated his position in the following cautious words: "Even if recent scientific researches have more and more limited the ground for spontaneous generation, it is nevertheless not improbable *that it even now takes place among the lowest and least developed organisms.*"

It may willingly be conceded that this assertion was in its time by no means without foundation. But scarcely could Büchner or anybody else at that moment imagine how soon the hour of decision would strike. Shortly after 1860 the many centuries old question was finally settled almost simultaneously by Hoffman and Pasteur. Through the latter's masterly investigations it was fully demonstrated that parentless generation does not exist in the micro-organic world either.

Before Pasteur's simple and clear evidence, opposition was silenced even so far that the question has almost entirely ceased to occupy our attention. *Omne vivum ex vivo* appears now to be an unchallenged truth. Life implies life.

But although science thus rejected *generatio spontanea*, the materialists nevertheless occupy a very strong position on the selfsame foundation as formerly, and continue the defense apparently not without some success.

In spite of Büchner's real, or perhaps partly pretended, confidence, he seems to have had a presentiment of how weak the support of *generatio spontanea* was, and we find him therefore suddenly reasoning as if its cause were already lost. Thus he makes the entirely sound remark that even if at the present time all animals and plants must have parents, yet nothing whatever is thereby demonstrated in regard to the very first appearance of life in the universe. "If all organic beings

have parents, how, then, did the first parents come into existence?" he asks. "When all outer conditions were favorable, might they not have appeared spontaneously, accidentally or necessarily? Or must the first organisms have been created through the intervention of some higher power?" Büchner concedes that this question is extremely complicated, and at first glance may appear unsolvable without the assumption of some such higher being who of his own will created the first organisms as it pleased him and endowed them with the faculty of propagation. "Orthodox scientists point with satisfaction also to this state of affairs," says Büchner, "and they remind us at the same time of the artful and complicated structure of the world, and warmed by their conviction they see therein the wise arrangements of a higher, personal creator, who built the world according to his personal intentions."

We might, according to Büchner,

dismiss these orthodox thinkers with the assumption "that the first elements endowed with the idea of the race have been present in space from all eternity in formless chaos out of which the universe slowly consolidated, and accidentally developed after the formation and cooling of the planet wherever conditions were favorable." But such fictitious reasonings or pretexts, Büchner assures us, are not necessary. Scientific facts, he says, indicate with great distinctness that the organic beings on our earth owe their generation and propagation to the co-operation of physical substances and forces alone.

After such an introduction we proceed with interest to learn about these scientific facts, but how great is our disappointment when we find that Büchner here takes up an entirely different subject, which, if it has any connection with the question at issue, goes to prove just the reverse of what he intended. The whole long series of facts to which he now points is, in a

few words, nothing but Darwin's theory in a paleontological light. What Büchner shows by numerous examples from fossil deposits, is that higher forms of animals and plants have slowly developed from lower forms. But what has this fact to do with *generatio spontanea?* That higher forms have developed from lower forms only confirms the dictum that life implies life; in other words, supports Harvey's law. But it is something else that Büchner should have demonstrated. He should instead have shown us that the first organisms owe their existence to physical forces alone. But on this subject he uses only vague expressions, void of any real significance, about the slow cooling off of the earth; about the length of the geological periods, and about favorable conditions; but not a line to explain what this word "favorable" stands for.

Although Büchner here inadvertently supports something different from what he intended, his remark nevertheless remains true that the present mode of

propagation proves nothing in regard to the generation of the first organisms.

Other scientists have gone further than Büchner and believed themselves justified in extending Harvey's law to cover not only the present time, but all times. And the problem as to the first organisms has been answered in various ways. Sir William Thomson believes that such might have come to the earth with some meteoric stone, possibly a moss-clad fragment, from another planet in the universe that had met with a cosmic catastrophe, and, further, he has even tried to show that this hypothesis does not involve any physical impossibility.

Opinions seem to be divided, then, as to the validity of Harvey's law. This again indicates a deficiency in the law itself, and it is true that such a deficiency really exists. *Harvey's formula is not a law; it is, as yet, only an empirical hypothesis.*

It is true that life presupposes life in all the cases we have been able to

investigate. These cases are exceedingly numerous because on the disbelief in *generatio spontanea* rests a whole modern industry, the art of preserving, which in millions of cases daily verifies the hypothesis. But our experience, in spite of this, does not reach far. If we continue our observations, who can guarantee that we would not finally discover that Büchner, after all, was right, and one single case would suffice. The utmost we can attain by observation is a certain degree of probability, and if we undertook to prove Harvey's hypothesis to be a law in this way, our experiments must be extended *in infinitum.*

In order to reach certainty only under present conditions, we must study the generation of every now living organism, animals, plants, bacteria and the like. If it were found then that all these beings have had parents it would still be impossible to draw absolutely sure conclusions in regard to previous generations. We should be

obliged to extend our researches through antiquity and primeval ages. If then no gap was to be found in the series and we perhaps finally traced life back to the "moss-clad fragment" from another world, we would again face the question, how the beings on that planet, once in time, had come into existence? Perhaps there the elements and forces of nature were such as to create life spontaneously. This question, of course, could not be decided except through continued observations, which would be obliged to extend to every point of an infinite universe and back to the dawn of time. First, then, we should know that Harvey's hypothesis was a law, valid without limitations in the past—but also only in the past—and valid with one single exception, namely, the very first organism, of which we presently shall speak. In regard to the law's validity in the future, we should no doubt possess a knowledge that approached certainty, but it could not be called abso-

lutely sure. Because, even granted that no living being hitherto was without parents, it is not logically impossible that sometime in the future, lifeless matter might undertake to create organisms. To obtain certainty we must continue our observations until the end of time.

CHAPTER V.

The Materialistic Demonstration of *Generatio Spontanea.*

THIS whole method is consequently unsatisfactory. With Harvey's law proved in the empirical way, the only way hitherto tried, we are still unable to decide how the first organism came into existence, and this is probably after all the most important question. Because, as Büchner rightly points out: "If life has a supernatural beginning, it has also a supernatural subsequent existence." Even if we were observing with our own eyes the creation of the first organism we would not be able to say whether it were the result of natural or supernatural forces. The moment our study commenced, the mystic act of creation would already have taken place, an act which lies beyond

the boundaries of research, and which we never shall be able to penetrate, however minute or comprehensive our observations. An entirely different method is here necessary. Our endeavor must be to find the innermost cause of the whole series of generations evolving throughout the ages. In other words, we must derive Harvey's law from the inner nature of matter itself, show that this matter has such qualities that it cannot, never could, and never will, be able to produce a single living being. Only then shall we have demonstrated that Harvey's formula is a universal, natural law, and then it will be not only our right but our duty to draw its logical consequences.

Is it possible to show that matter possesses such qualities? In regard to the matter of which our earth is composed we are at least able to closely investigate its qualities. But our earth is only an insignificant point in the universe and we must search the en-

tire cosmos. Is not this impossible? We answer that in many ways, especially through the spectral analysis, we already know that nature's elements everywhere are the same and that they everywhere have the same qualities. If Harvey's law can be deduced from the matter we are able to investigate, we have at the same time shown its validity for the whole of the universe without limitations as to time and space; because then we may apply in regard to organic substance Büchner's true remark as to the products of nature in times past. "The natural forces," he says, "that governed the universe formerly are the same as those whose results we now witness every day and moment. Earth's past time is to our thought nothing but an unrolling of its present. The geologists, guided by their knowledge of nature and its present laws, have been able with increasing accuracy to trace back evolution to the most distant ages. Meanwhile it has been established that

everywhere and during all time only those elements and forces have been active which surround us today. Nowhere has a point been found where research had to be thrown overboard and an interference of unknown forces substituted; and nowhere and never will this happen. Everywhere the same laws were in force and the same matter was found. Historical research has demonstrated that past and present are subject to the same evolution, rest on the same basis." And different it could not be, reasons Büchner, since life knows no exceptions, does not shirk any inorganic forces, but is itself only the result of the activity of these forces.

To obtain a definite understanding of the origin of life it is therefore sufficient to examine the origin of organic matter in our days, and for such an analysis there is at least no lack of material. Wherever a tree or a grass blade grows or a seed sprouts there dead substance is transformed into living; wherever an animal or a plant is

decaying, there organic matter is again turned into inorganic.

The result obtained through such investigations already made, stood in direct opposition to the immediate observations. Although Harvey's formula finally was accepted, it was nevertheless taught *that no specific life-force exists.*

This contradiction was never fully understood or emphasized during the last century, and the reason was that the materialistic tendency was so predominant that nobody noticed that the question of life-force is the innermost main point, around which not only *generatio spontanea* and *omne vivum ex vivo*, but also their consequences, materialism and idealism, are centered.

But in order to deny life-force as an independent principle, some scientific facts to build upon were necessary and these were not lacking.

Before we state these facts we will in a few words describe the historical situation.

According to the previously prevailing vitalistic doctrine a specific life-force existed, present and active in all organic processes. The conceptions in regard to these processes were, however, very dim, and the reason was that the problem of combustion had not yet been solved.

This problem may be said to be the very key to the chemical explanation of an organism. The ancient mystery of fire was first solved by Lavoisier after Scheele and Priestly had discovered oxygen. The solution of this complicated question not only became the starting point for a new and rapid evolution of chemistry, it also almost immediately threw a clear light on the innermost recesses of the organism.

The elementary constituents of the organism and their origin were known before, and it now became also possible to explain the great store of energy that the living being possesses. To assume a specific life-force seemed superfluous. Life-force, from having been the

indispensable explanation of organic phenomena, commenced more and more to be regarded as a "back-way for ignorance," one "of those many side doors that dull heads employ when they find it too laborious to think about something that they do not understand."

It was natural that the materialists would eagerly embrace these ideas. From the few words with which Büchner introduces his chapter about life-force, we obtain a clear insight into the opinions that are held on this subject in the world of natural science. "The mystic notions," says Büchner, "that have confused the philosophy of science were invented by a time possessing but a slight knowledge of nature. To these notions, which have been thrown overboard by a later exact scientific research, belongs first of all the so-called life-force. Scarcely has there ever existed an hypothesis more detrimental to the cause of science than this singular organic force presented in contradis-

tinction to the inorganic forces, gravity, affinity, light, electricity, magnetism, etc. If science were forced to acknowledge such an hypothesis, all we have said about the immutability of the natural laws and of the mechanical order of the universe would collapse, and we would be forced to admit that a higher hand interferes in the course of nature, dictating exceptional laws that defy all calculations. A break would be found in the natural structure of the world, science would despair, and all physical and psychical research cease. Fortunately science has not been obliged to yield to the irrational pressure of the dynamists, but, on the contrary, has won everywhere a splendid victory; it has lately gathered such a mass of self-evident facts to its support that life-force nowadays wanders an empty shadow along the boundaries of natural science. All those who have made a closer study of any of the branches of science that deal at all with the organic world, agree, almost

to a man, in the condemnation of life-force, and the very word is so detested by science that it is always purposely avoided."

We may now let Büchner present the real, scientific evidence why life-force must be charged to the ignorance of a time when knowledge of nature was but slight. In this way the reader will perhaps obtain a more direct and at the same time an historic view of the materialistic mode of thinking.

Above all, says Büchner, it is the province of chemistry to show that the elements of matter are everywhere the same in the inorganic as well as in the organic world, and that life substance is unable to present one single atom not found in inorganic nature and therefore not partaking in the general flux *(Stoffwechsel)* of matter. Chemistry has decomposed organic bodies into their elements exactly as it did before with the inorganic.

All known inorganic forces act identically with respect to *living* as to *dead*

nature. We have seen that forces are nothing but qualities and motions of the smallest particles of matter, the atoms, with which these forces are invariably and inseparably conjoined. An atom therefore under all circumstances can only perform the same work, develop the same forces, produce the same effects, whether it belongs for the moment to an organic or to an inorganic composition. Respiration, digestion, the process of growing and segregation are all chemical reactions. Oxygen, hydrogen, carbon and nitrogen are composed and decomposed within the organic body in accordance with the same laws that govern them outside.

We have also learned more perfectly how nourishment is transformed into organic tissues, and we know that through different channels it leaves the body in precisely the same quantity as it entered, partly unmodified and partly in other forms and compositions. No one atom has meanwhile been lost or

become another. Digestion is a purely chemical process. The stomach of an animal may well be compared to a chemical retort, where the substances there mixed are decomposed and composed exactly according to the general laws of chemical affinity.

These facts, which may be multiplied *ad infinitum*, enable us to understand that the difference between organic and inorganic is non-essential, and that therefore every living being may be considered a chemical laboratory, whence we arrive at the following result:

Because daily experience teaches us that all organisms consist of the same atoms as does inorganic nature, although in different compositions, therefore no specific organic force, no life-force, can exist. This latter is not a principle, but a result. When organic substance assimilates inorganic and brings it into its own characteristic condition, this is not done through a specific force, but through a kind of infection, whereby the molec-

ular conditions in the organic substance are transferred to the inorganic.

But not only does organic matter consist of the same elements that are to be found in inorganic nature, but the organism as a whole is nothing but a bodily mechanism not differing from other machines except in its more complicated construction. Water, says Büchner, which must be considered as the foremost and most important part in all organic beings, and without which all animal and plant life were impossible, water penetrates, flows and sinks according to the laws of gravity, not differing by the breadth of a hair in its action within and without the organism. The circulation of the blood is as mechanical as we could wish, and the anatomic contrivance that causes it bears a surprising likeness to mechanical apparatus made by man's hand. The heart is provided with valves just as a steam engine; the valve movements produce audible sounds. The rise of the blood from the lower

parts of the body to the heart against gravity can only be made possible by a mechanical arrangement. The bowels convey their content mechanically; mechanically the muscle movements take place, and mechanical motility characterizes men and animals. The human eye obeys the same laws as a camera obscura and the ear catches the sound waves in same way as does any other vault, and so on.

Science, therefore, entertains no doubt that the living organism is a machine as well as the steam engine, i. e., a system where chemical affinity produces heat, electricity and muscular energy.

Now, are these facts, pointed out by Büchner, true and correct? Undoubtedly they are in all essential respects eternal truths, and we may add that they are just as important foundations for idealism as the materialists have claimed them to be for their opinion. But before we take up this subject let

us see how the materialists derive their philosophy from the facts mentioned.

There are many other objects in this world, of which we might almost verbally repeat what Büchner says about organic matter; for instance, windows, doors, locks, bricks, houses, etc. In these objects also there is not one atom to be found which was not present in the raw material of which they were made. But does the raw material itself produce these things? So Büchner reasons. He says: *"Because all organic matter consists of inorganic raw material, therefore the raw materiai, itself, has made the organic matter. Because the organism is essentially like a steam engine, the building material itself has made the organism."*

This headlong way of reasoning and concluding is not characteristic of Büchner alone, but applies equally to the whole materialistic school during the past century.

We have not said that inorganic raw material is unable to produce organic

substance spontaneously, which substance later upbuilds the organism, but for the present this remains an open question to which as yet the materialists have not given an answer. But before we enter the discussion of this extremely important question, we will in this connection mention another discovery of natural science which seems exactly to support the materialistic trend of thought, a fact, therefore, that crowns, so to speak, their whole philosophy.

Up to the year 1828 it was thought that organic substance could be created only by the force of life. But Wöhler unexpectedly succeeded in producing organic compositions from inorganic substances, a discovery which was followed by a series of others in the same direction. It is with evident satisfaction that Büchner calls our attention to these facts.

In order to show the necessity for assuming a life-force, he says, people have reminded the chemists that they

are unable to produce organic compositions, that is, the peculiar grouping of the elements into those ternary and quaternary compounds which owe their existence to an organic being, endowed with life and life-force, and they have added the amusing remark that the chemists must produce living beings in their retorts—make men—if there be no life-force and if life be only the result of chemical processes. The chemists have not been at a loss for an answer. They have made dextrose, several organic acids and bases, and recently they have also succeeded in producing *hydrates of carbon.* Evolution has proceeded rapidly in this direction, and today alcohol and precious perfumes are made from coal, candles from slate, Berlin blue, taurin and innumerable other bodies—formerly believed to be exclusively of animal or plant origin—from the simple material that inorganic nature offers us.

The materialists have a custom of not considering themselves under obli-

gation to do more than point to some scientific facts, without investigating whether these facts support their speculations or not. Faithful to this custom, Büchner stops just where his own researches should have commenced. Büchner has not written a textbook on physics or chemistry. He has undertaken the extremely serious task of investigating whether modern natural science has produced results which show that nothing but matter and its forces, and consequently no soul, no eternal life, etc., exist. Our first demand of such an analysis would be, to put it moderately, that the facts cited really prove what they are put forward to prove. But to this demand neither Büchner nor his followers pay any attention. Büchner might, for instance, in regard to the facts last mentioned, have taken the following questions as the starting point for his investigations:

It is true that the chemists have produced artificially certain organic compounds of inorganic elements, and they

will probably go much further in this direction. But is this really something to be wondered at, when all organic substance is composed of inorganic elements which, wherever they exist, possess the same qualities? The question is how this organic substance is formed. Does it appear spontaneously in the chemist's laboratory while he himself stands idle, observing the phenomenon, or must he interfere, guide and plan the activity of the chemical forces in order to obtain these artificial compounds? Why should not something similar take place in the laboratory of inorganic nature? There is, as far as our experience goes, no organic substance to be found due to the spontaneous action of known natural laws. What is the reason of this? How is organic matter formed in nature? And, further, is there no difference between the organic matter produced by the chemists and that present in *living* nature? And if this difference proves to be that the former is *not* organized

while the latter always is, why cannot the chemists produce organized matter?

If Büchner had proposed these or similar questions and taken time to think them over, he would have obtained a different result, but instead he breaks off his argumentation just where it should have commenced.

Consequently the fault in the materialists' process of thinking does not lie in the facts used as foundation for their argument. The premises and the beginning are correct. Just because organic matter consists of the same elements as inorganic, just for this reason natural science can decide whether the physical laws are able spontaneously to produce such matter and such machines. The materialists have stopped after providing the introduction; the continuation and the end are lacking. They have overlooked the whole series of scientific facts that stand in necessary correlation to the starting point. We have therefore only to resume the interrupted demonstration and will

then endeavor to make the latter part as simple and comprehensible as Büchner made the former.

CHAPTER VI.

How Is Organic Matter Produced?

THE ESSENTIAL in matter is force. Strictly speaking, we comprehend nothing but forces. Every body manifests itself as resistance necessary to overcome if we wish to remove it from its place.

What remains of the body if we think of it as deprived of this counter force? At least nothing remains that we can touch or by which we may obtain palpable evidence of its existence. Neither does there remain anything that we can see, as seeing depends upon resistance to light, reflection of the ether-waves. If the mountain exerted no resistance we would pass through it without feeling or seeing anything whatever.

True, there is perhaps matter—for instance, the ether—which we neither see

nor feel, but which still exists. This matter is then qualified by some other form of energy by which it manifests itself. Thus we comprehend ether as light, heat and colors, all forces, as well as gravity, electricity, etc.

Already from these suggestions it is evident that force is the only substantial thing in the material world. Without force, matter is nothing that may be comprehended either by the senses or by the reason. What we call matter is nothing but different kinds of energy.* We have space-occupying energy, chemical, electrical, mechanical forms of energy, and so forth.

How are these forms of energy related to each other? Between forms so different as tones and light, colors and mechanical work, there is at least

*The latest researches in regard to the newly discovered corpuscles show that these "bodies" have a mass proportional to the square of their velocity, thus forcing us to conclude that they at rest have no mass. Perhaps, therefore, the ancient dualistic world of matter and force is merging into a larger unity where life directs force to serve its specific purposes.—Translator's note.

no connection apparent to external observation.

For a long time it was also believed that no such relation existed. It was only after 1840 that several scientists made the startling discovery almost simultaneously that physical forces may be transformed one into another. It proved possible to transform a certain quantity of heat into an equal quantity of mechanical energy, which again might be turned into equivalent quantities of electricity, light, chemical energy, etc. It was further found that these processes might be undertaken in the reverse order, so that the original form of energy could be restored in unchanged quantity and with unmodified qualities. Nothing was lost and nothing was added.

Recent science is founded entirely on these facts, which later generations probably will consider as the greatest of all the discoveries of the last century.

This law of the permanence and the

mutability of force is of immediate importance to materialism. As long as it was thought that the forces of nature were separate and different from each other, it was easy to imagine that the more inaccessible or mystic forms stood nearer life, yea, were life itself. The absurdity of such an idea is now obvious, since it has been shown that the physical forces may be transformed into one another and therefore are not intrinsically separate, but fundamentally the same force, acting differently under different conditions. Now, if life were a form of material energy, any form of physical force might be transformed into life and consciousness, into spiritual and moral forces. Life and consciousness might then be artificially produced, and we would rack our brains in order to find the mechanical equivalent of the intellect, try to measure it in amperes and volts, etc. But nothing of this kind is done, simply because it is impossible, as presently we shall see. *Life cannot be transformed*

into any form of material energy, and, vice versa, no form of material energy can be transformed into life. Life and physical force are, as to nature and substance, essentially different principles.

Although the law just referred to about the permanence and the mutability of physical forces thus seems rather to disprove materialism, it was not for this reason chiefly that we have related it. Our purpose is to find a basis in this fact from which the fundamental contrariety between organic and inorganic matter most easily may be explained, and thereafter to enter into this differentiation just as far as is necessary to decide the main point as to whether one form of matter can spontaneously produce another.

We recollect that the materialists endeavored to make the difference between organic and inorganic compounds as slight as possible. The former consisted of exactly the same elements as the latter and these elements

had exactly the same qualities in one compound as in another.

However true this may be, is not meat nevertheless something different from limestone, although limestone may easily be found that contains nearly all the elements present in the meat? In starch, sugar, fat, etc., precisely the same elements enter as in water and carbonic acid, but no materialist denies that there are important differences between these two groups of substances.

What is it, then, that essentially separates the two classes of matter (nothing but the most essential factors concerns us here)? If we ask this question of chemistry, we are answered that this quality is combustibility. Organic matter is combustible; inorganic is not.

But why should organic matter be combustible? Because fuel is as necessary to the organism as to the steam engine. To both their physical source of power is heat, and even the engine receives it through the combustion of

organic substances. All the fuel that is generally used is of organic origin, although we seldom think of this fact.

But why can we not fire an engine with inorganic products? Because these cannot burn, and the reason again is, that they are already burned. If this be true, they must once have been fuel themselves, must once have been in a burning state. How do we know this? Because the inorganic world consists almost entirely of chemical compounds that are only formed by combustion, when this word is used in its widest sense.

If these suggestions are correct, organic matter is to inorganic as fuel to the products of combustion. In the inorganic world the latter have been transformed to fuel which in a renewed combustion reproduces the same products as those of which it once was formed.

If this be the case our problem may be thus formulated: Can inorganic products of combustion again form

combustibles spontaneously? Can carbonic acid or water through the *spontaneous activity of physical forces* be transformed into sugar, starch, fat, etc.?

In order to decide if this be possible we must first know what combustion is, and we will therefore briefly explain what this term means.

Combustion is a chemical process, it is said, and this definition may be true, although it may also be misleading. In daily speech combustion is generally identified with the phenomena of light and the generation of heat, which we immediately observe, but chemical processes can neither be seen nor felt, because they take place in the inner world of matter which hitherto has proved inaccessible to human observation. Yea, chemical processes are so foreign to the experiences of our senses that chemistry, the science of these processes, is entirely founded on the deductions of our reason. The premises that our reason uses for its con-

clusions belong to the physical world which is the outer side of matter that faces us. The phenomena that accompany combustion belong to this world and are, therefore, strictly speaking, not chemical but physical phenomena.

But even if these phenomena of light and heat, of which the latter especially interests us here, belong to the world comprehensible to our senses, they must nevertheless be intimately connected with the inner chemical process because heat is developed in nearly every chemical reaction. Heat is not created from nothing; there must be a cause for this force, and the cause cannot be anything but the chemical energy which in the chemical process is transformed into heat. In few words: What we generally term combustion cannot be identical with the actual chemical process. The light and the heat must, on the contrary, be considered as the external results of the chemical process, its physical effect.

By a close study of this physical

effect we have also been able to explain what happens within matter itself. As it is necessary to understand this in order to comprehend how heat is developed, we will endeavor shortly to outline the present scientific conception of the chemical process called combustion.

From the qualities of matter we have concluded that the bodies we see are composed of extremely tiny particles called molecules, which, however, are so small that with our optical resources we never shall be able to observe them. Even the smallest particle of dust visible to the eye must be considered as containing an enormous number of them. With molecules, however, we have not reached the limit of the divisibility of matter. They may themselves be divided by chemical forces into smaller material units called atoms, and these latter are therefore the building stones of which matter is ultimately composed. Now neither the atoms within the molecule,

nor the molecules within the visible body, are packed closely together. They are separated by comparatively great spaces. But if these building stones are separated from each other we might expect that they would behave like the grains in a sand heap.

How can material bodies then be solid, hard, tough, etc.? The reason is that the spacing in question is regulated by other forces of essentially different kind. We have attracting as well as repelling forces, such as tend to increase as well as to reduce the distances between the particles.

We shall first consider the attracting forces, and these are called cohesion and adhesion when exerted between molecules. The mutual attraction between the atoms within the molecules has been named affinity or chemical energy.

Turning again to the form of energy acting in the opposite direction, we find just the force we are in search

of—heat, which is the physical source of energy of all living beings.

That heat increases the distances between molecules is already evident from the fact that all bodies increase in volume when heated, a process which may be continued by further supply of heat until the solid becomes a fluid, and the fluid a gas.

In solid bodies the attracting forces have predominance. The molecules are arranged with definite spacing and in definite positions so that the body assumes a certain external shape. If such a body is exposed to heat the molecules are removed from each other and the cohesion becomes correspondingly feebler. Finally a point is reached when the molecules are so far unfettered that they are at liberty to move with respect to each other. The solid has then become a fluid and may through continued heating enter the gaseous state. The cohesion is then entirely conquered so that the mole-

cules move freely in all directions independent of each other.

Similarly, heat influences the atoms of which the molecules are composed. Even chemical attraction gives way to heat so that all bodies at sufficient temperature are decomposed into free atoms or elementary constituents.

We have seen that heat performs mechanical work in so far as it separates masses from each other. But heat not only performs this work but is the work itself, or is identical with the movement of these particles.

Consequently a certain quantity of mechanical work is equivalent to a certain quantity of heat and *vice versa*, and it is this transformation from one form of energy into another that takes place during a chemical reaction. The mechanical energy of the atoms is here converted into heat which may again be used for the other forms of mechanical activity. Through the chemical reaction that heat is regained which previously was utilized in separating the

atoms or sustaining their movement, and this explains why heat is developed in chemical processes. If this development of heat is increased to a certain point, or, which is the same, if the reaction takes place with greater violence, the common phenomena of fire and light appear. But even without these, every chemical process may be called combustion in a wider sense, that is, if we consider the production of heat as the characteristic external effect of the chemical force.

At sufficiently high temperature, then, all matter must be in an incandescent gaseous state, and *vice versa* at a low temperature it is a solid mass.

With these short notes we have also outlined the history of our own earth. The same gaseous state in which our sun is at present belonged once to the earth according to science of today. During enormous periods of time the incandescent matter of the earth radiated light and heat into the cold universe. Finally so much heat was lost

that chemical attraction could assert itself. Regarded as a sun, the earth was then dying and it entered upon the chemical era. During this state the elements combined with each other according to general chemical laws into such compounds as were the necessary outcome of their atomic weights, valence, and positive or negative qualities. In this connection it is sufficient to point out that these processes must go on incessantly until compounds have been formed in which the chemical forces have reached equilibrium and rest. In the case of our planet these products formed the solid crust of the earth, the primeval rock, the mineral world, further water and finally air, the oxygen and nitrogen of which may be considered as remains of the elements. Furthermore, according to a law known to science as that "of the least resistance," chemical reactions proceed from compounds which have more energy to such as have less, wherefore it follows that each product

was as poor in energy as the conditions at the time permitted.

If we now especially give our attention to the combustion taking place in chemical processes, this era may also be called the period of combustion or the general world-fire, names which are exact even if we use combustion in the common, limited sense of oxidation. Oxygen is considered to constitute about one-half of the solid crust of the earth, and when to this quantitative preponderance is added its extraordinarily strong affinity to other elements, these must with necessity burn into oxides just as has been the case.

It is therefore with the products of combustion, that is to say, the ashes and the remains from a general colossal world-fire, that the earth enters its planetary state, at which stage it becomes suitable for the creation and evolution of living beings. It is from burnt substances that the organisms must form the combustible matter that constitutes their material clothing.

How can this be done? In the only possible way; that is, by again decomposing the products of combustion into their elements and bringing them into such combinations that a new combustion may take place. Are the products of combustion able to perform this transformation spontaneously? They have just lost the fund of energy that could have made them combustible and this lost heat must again be stored up and therefore taken from some other source, as no heat can be created from nothing.

When the chemical forces had once reached equilibrium and rest, the earth might then be compared to an immense corpse thrown into space and which must remain in the same state eternally, or until it met with a cosmic catastrophe. Not the slightest movement or variation could now take place spontaneously on its surface. If a change happened it must have had its cause in another source of power, and two such sources existed. One was the earth's

own internal heat, and the other the sun, and we must therefore consider if either of these, or both together could produce combustible organic substance.

In regard first to the earth's internal heat we might immediately eliminate this source of energy, as it has no direct connection whatever with the origin of organic matter, an assertion so commonly agreed upon that we need not dwell further upon it.

Infinitely more important is the sun, which has been and is the cause of most of the changes taking place on the earth's surface after its cooling off. The sun causes the circulation of the air and water and thereby the whole series of disintegration and decay, the history of which is written with indelible letters in our geological sediments and formations. These formations tell us that new oceans and continents, new minerals and rocks have successively been formed, but nowhere that organic substances were ever built up spontaneously under the sun's influence.

The processes of decay, on the contrary, proceed in the entirely opposite direction.

Through them nothing is formed but compounds poorer in energy than before. In decaying, the products of combustion absorb, if possible, more oxygen, become more burnt or oxidized, so that this whole process may be called an after-burning, a more thorough combustion of the remnants from the first general world-fire.

The spontaneous activity of nature's forces, then, go in a direction just opposite to the one necessary for the production of organic substances. And anything else was not to be expected. The products of combustion resemble fallen weights, slack bow-strings, water below the fall, etc., whereas combustible organic matter might be compared to lifted weights, set bow-strings, water above the fall, etc. If matter has once fallen from a higher to a lower level of energy it can never spontaneously return, especially as it has just lost the

necessary store of energy. As impossible as it is for the swift current to turn its course, or for the fallen weight to lift itself or for the discharged bowstring to set itself again, so impossible is it for the products of combustion spontaneously to turn into combustible substances.

CHAPTER VII.

Organic Matter as a Product of Art.

FROM the previous chapter we now draw the extremely important conclusion that all organic matter is a *product of art*, that is, a product which the forces of nature cannot produce. Spontaneously these forces only create natural products. Products of art belong to an entirely different category; they owe their existence to a foreign interference in the natural order of the world and have a cause that does not fall within the limits of a mere mechanical causality. But before we discuss this subject, let us first thoroughly understand what we mean by saying that organic matter is a product of art.

Materialists have shown that the organism closely resembles a steam engine, but they have neglected to point

out that the similarity extends also to the mode in which they are produced. Everybody is probably convinced that the forces of nature have never made and never will make a steam engine. If the same might be said in regard to the machines which we call organisms, then materialism would be disproved. But why, to begin with, cannot the forces of nature build steam engines? We must be able to present the reasons for this statement.

If we first consider the building material, we find this in the factories in the form of plates, bars and ingots of iron, copper, lead, tin, etc. Where do these metals come from? Nowhere in nature is such material found.*

Humanity had inhabited the earth thousands of years without having an

*Chemists understand that the so-called native iron, found, for instance, in Greenland, forms no real exception more than the chemical reactions that absorb heat form exceptions to the general law that chemical processes set heat free, because if the necessary simultaneous reactions are taken into account, all the reactions as a whole show a surplus of heat.—Translator's note.

idea of the existence of such substances as iron, copper, lead, etc. The metals are chemical ingredients in our minerals and from these minerals they are extracted by complicated, artificial processes. The ore is often lifted out of the depths of the mountains; it goes through a series of treatments which the forces of nature cannot spontaneously undertake. We will here give only a moment's attention to the process of reduction, or the separation of the metal from its natural compounds. This, as we know, is done in our blast furnaces, where the iron is reduced through the presence of coal and other suitable substances in certain proportions. If we now remember that the heat in our furnaces often reaches about 2000° Centigrade we see at once that the sun may shine on our mountains throughout eternity without ever producing the temperature necessary for the reduction.

But the engine is not yet completed. The plates must be first rolled and

shaped, the ingots must be melted and cast into frames, shafts, bearings, etc.; in short, the raw material must be formed into all those numerous parts of which the machine is composed. The engine is from beginning to end a product of art.

There is especially one circumstance pertaining to all these transformations that merits a closer attention. If we remember that all the material used in a product of art is taken from nature, and besides that, all the processes in making and shaping the raw material are carried out through the employment of natural laws, we might still ask the question, why physical forces should not enter spontaneously into the necessary artificial combinations for producing this result. Until we have pointed out the quality in matter which prevents this, we have not completely demonstrated the inability of natural forces to build an engine spontaneously.

This quality has been named *vis*

inertiae, the inertia of matter, one of the most important natural laws that exist. What does this law teach us? It says that matter cannot itself change its condition. If a body is in motion it can never come to rest unless another force at least equal to the primary opposes the motion. If it be at rest, it cannot impart motion unto itself; energy, applied from without, is necessary. Inertia keeps the earth moving around the sun; a stone thrown into the air would proceed everlastingly with its initial velocity if the attraction of the earth did not interfere.

Because of this quality, then, matter remains in its natural equilibrium. An engine would never be built because the ore would stay in the mountains and the metals forever remain in their compounds. Every product of art requires a foreign interference in the material world; matter, in consequence of its inertia, presents a determined and often very energetic resistance to such an intervention.

Exactly the same reasons that prevent natural forces from building a steam engine, cause also their inability to produce an organism, and this in a much higher degree because the organism is in a still fuller sense a product of art. The organic building material, instead of being plates and ingots of iron, copper, lead, etc., consists of carbon, hydrogen, sulphur, phosphorus, chlorin, potassium, sodium, magnesia, etc., or both metals and metalloids of which the former, on account of their negative, and the latter because of their positive qualities cannot exist in a free state. From the minerals found in nature these substances must be extracted for organic purposes. The elements are different, but otherwise we may verbally repeat in regard to organic substance what has been previously said about the steam engine.

It is the creation of organic matter by art that the materialists have neglected to take into account. Therefore they look upon the organism just as a

new race, suddenly succeeding humanity, would view our steam engines. These machines would certainly appear very mysterious to the earth's new inhabitants. But a growing civilization would undoubtedly discover that all the material used in the engine is taken from ores to be found in nature. If now somebody would draw the conclusion that these ores themselves had made the engine he would reason as do the materialists today in regard to the organism. The parallel does not halt in any respect, but it is sufficient in this connection to call attention only to one or two of the more important components of the organism.

Organic matter, or combustible substance, consists of carbon and hydrogen which in an organism are comparable to the iron in a steam engine. But nowhere in nature is free hydrogen or free inorganic carbon to be found. The carbon was burned to carbonic acid in earth's first combustion, and similarly the hydrogen was burned to

water long before the conditions for organic life existed on the earth.

From these original products of combustion, burnable organic matter is formed by decomposition of carbonic acid and water into their elements, carbon and hydrogen, and by their subsequent combination through feebler chemical forces into sugar, starch, etc., which substances through a new combustion are again turned into carbonic acid and water. The natural forces cannot spontaneously undertake these transformations that only take place because of artificial arrangements. The processes of nature go in the entirely opposite direction, as we have seen.

As a matter of fact, the reduction of carbonic acid and water is done through the direct assistance of living beings. From the sun they take their power. But how ineffective the sun would be, left to itself, is seen already by the fact that carbonic acid is disintegrated at a temperature of 1300° C. and water only at 1500°.

Products of art must be resorted to, and we know that by lenses, burning mirrors, photographic cameras and the like the sun may be forced to accomplish results that otherwise would be impossible. Such artificial apparatus, then, must be the chlorophyll granules in the cells. More strikingly yet, these organs of the cell may be compared to our blast-furnaces, as it is just in the chlorophyll granules that the reduction of carbonic acid and water, according to science, takes place. If these artificial devices, invented and constructed by the lower living units that constitute the cell, did not exist, the sun might shine throughout eternity on water and carbonic acid without producing organic building material.

This material is and must be the product of art. If the forces of inorganic nature spontaneously produced sugar, starch, etc., these substances must have the same quality as our rocks, minerals, etc., of being products of combustion, which in such a sup-

posed case, perhaps, would be made burnable if transformed into water and carbonic acid. We would obtain a creation turned upside down and analogous to a world where the bodies we now use as weights would remain unsupported at certain distances from our earth. If we were to use such a body as a weight in a clock, we would have to wind it down instead of up.

Because organic compounds are products of art, living beings find themselves obliged to direct the physical forces to destroy these compounds or restore them to their inorganic state more speedily than these forces would have done if left unaided. The processes of decay, performed by microorganisms, are as necessary in the economy of life as the reverse processes. Otherwise the earth would soon be so covered by corpses that life must cease simply for lack of inorganic raw material. It is true that we might imagine living beings as adapting their organization to this condition and for

some time directly utilizing the accumulated stores of organic matter; but such periodical interruptions and changes would disturb the continuity of life's evolution. To avoid this, there is no way open to restore equilibrium except the one in which it is now done.

No effect, whatever its nature, can exist without cause; and further, every effect must have a sufficient cause. If, therefore, we have established that natural forces can no more produce organisms than steam engines, we have also proved that these things would never have come into existence if the organic forces had been left to themselves. Neither organisms nor engines would exist, because they have no cause in the material world. The products of art are due not only to other causes, but the relationship between cause and effect is also different with them from what it is with the products of nature. Every product of nature has its cause in a previous condition of matter. The cause goes be-

fore and the effect comes after in time. The connection between cause and effect is so intimate and complete with regard to natural products, that we may trace the series of occurrences backward and forward in time without other limitations than those imposed by a deficient knowledge of the qualities of matter. Such a connection between cause and effect has been termed mechanical causality, which reigns without exception in the material world.

Of entirely different kind and nature is the series of causes pertaining to the production of objects of art. In their capacity of purpose they are themselves the physical cause of all the work that precedes their birth. When the product of art is finally ready, the effect has then gone before the cause. Such a connection is called teleological causality in contradistinction to the mechanical one, where the cause always precedes the effect.

But although the product of art is

the nearest cause of its own production, it is not the primary one; it is itself the result, not of a cause to be found in the material world, but of a *foreign* interference in the mechanical causality, and points therefore to a supernatural ground which, by a closer investigation, will be found identical with a living will. The will feels the want of other things than those which natural forces can spontaneously produce. Natural products act as incentives on the will, spur it to break through mechanical causality so that physical laws by a judicious guidance may be forced to produce artificial products that better satisfy the desires of the will. If natural laws could comprehend and judge these things, they would consider them all as miracles, whereas, from the point of view of the will, they are so much the more natural as they are exact expressions of the needs and desires of the will.

But not only the order of cause and effect, even the tie between the two is

entirely different in teleological causality from that in mechanical. While the natural product is an effect that cannot fail to appear, the product of art, on the contrary, is an effect that primarily never could be expected, because it has no cause in the material world; but further, if it is forthcoming, the tie between cause and effect is so loose that such a product may be left and will remain in any stage of its production. It may be just commenced, half ready, or nearly completed; be better or worse, be a failure, and so on, whereas the natural product springs forth of physical necessity from its cause and never can be different from what it is.

Wills and physical forces then stand against each other as two fundamentally and radically different causes. A will may neglect to do what it ought to, may be idle, industrious, undecided; a physical force cannot leave undone what it has to do, can never be called idle, industrious or undecided.

That man is able to produce objects of art we have sufficient evidence in material invention, from the simple stone-ax up to the most complicated machines. But if man can create products of art he must himself be a supernatural cause, as natural products produce nothing but their own kind. And not only he but also the beings that build up his organism must be supernatural causes, as we have seen that all organic matter *ipso facto* are products of art.

In all these different forms and species of products of art we possess, therefore, boundless masses of obvious and visible evidence that life is not a quality of matter. In order to break through the mechanical causality and introduce into the material world effects which never could be spontaneously forthcoming, life must have a supernatural origin, must be a principle independent of matter.

By resuming the demonstration that the materialists had broken off, we

arrive therefore at the same conclusion that natural science had already drawn before from external observation, and with which the question of the nature of life-force is inseparably connected. The qualities of matter itself demonstrate clearly that spontaneous generation never has been, is not and never will be possible, and the tremendous labor spent during centuries to prove this by external observation seems almost a waste of time. We might as well pick out a table full of stones and sit down expecting some of them to undertake a flight around the room, as to expect living substance to come forth spontaneously from dead matter. The intrinsic qualities of matter tell us that only hope for the former occurrence can warrant faith in the latter.

We thus consider it demonstrated that Harvey's formula is a universal natural law and we may now draw its logical consequences: *Life is not a material force; no living being can there-*

fore arise from dead matter; all life has a supernatural origin in a higher immaterial world.

CHAPTER VIII.

The Soul and the Cells.

LIVING beings are alive because the very substance in them is living. Life belongs to this substance exactly as materiality belongs to matter. As living substance can exist only in the form of living individuals, all living beings fall outside the limitations of time and possess individual immortality without exception. *The cell, therefore, is as immortal as man.* But if this is the case, the fact that the duration of the earthly life of man is different from that of the cell must now at last appear in its full significance. During man's life a series of cell-generations have lived, acted and disappeared, although the phenomenon here, as in the body of society, passes comparatively unnoticed because the cell is invisible to the naked eye. Of course we ob-

serve a daily growth of nails, hair and of the whole outer skin. This outer layer consists exclusively of dead cells, which daily scale off by the millions through wear, washing or otherwise, and are replaced by other dying cells from the inner living tissues. The same process of dying and renewal takes place in the organs of the cell. As man's lifetime often depends on the trade he has chosen, so it is with the cells in his organism. Those that perform heavy work, as for instance glandular cells, often die in the moment their mission is filled. This process commences even in the individual's embryonic state. With lower animals, whose generation takes place outside the mother-body, we can often observe with the naked eye how whole organs normally die and disappear.

If the cells as well as men are immortal beings, the question naturally arises: what becomes of these incessantly dying cell generations? The answer must necessarily be apparent if

we can show, First, *that the tie between the soul and the cells is indissoluble so that man's organism, i. e., his spiritual body, consists of the same cell-individuals in a future life as here in time;* Second, *that the cells at the same time are self-existent and so independent of the soul, that in a future existence also, as here in time, they can and must build up man's organism independently.*

In such case no reason can be advanced that would prevent the dying cell-generations from immediately arising to a new and higher evolution, which, as we will endeavor to prove, must be identical with the upbuilding of the higher, transfigured body which man shall possess in a future life. This form of resurrection must be common to all organisms because they are all built according to the same general plan and are consequently subject to the same general process of evolution. Men are themselves the cells in another higher organism, humanity, which entity cannot rise to a richer life in an-

other world otherwise than through its upbuilding by the dying human generations under the new conditions that exist over there.

As a preliminary experiment in order to find out if the soul is indispensable to the life of the organism, or if the cells possibly might do without the soul, we may appropriately remove the latter from an organism and thus directly observe the importance of the soul for the cells.

But how can this be done, or at least, how may we deprive the organism of all influence from the soul? The physiologists have proved the possibility of such an experiment. It is fully established that the soul communicates with the body through the brain proper, or the cerebrum, and experience shows that this important organ may be removed and yet the body continue to live. We will here give briefly the results of such experiments made with animals.

If the brain be removed from a dove

or a hen, the bird often recovers from the radical operation and may remain alive for months and even years. But the dove has become an entirely different being. Immobile she sits on the same place. If she were not heard to breathe she might be taken for a stuffed bird. She lacks ability to judge her position and resembles a living machine that breathes, and swallows the food brought into her bill. The higher qualities of the dove are entirely lost. She shows no signs of fear and is incapable of initiative. She remains sitting in the same place and will not even fly down from small heights. If thrown into the air, she flies until her wings are tired or until she strikes an obstacle that she makes no effort to avoid. From the first day she must be fed artificially, but she digests her food as usual. The heart, the circulation of the blood, the respiration, in short, all the vegetative functions of life continue regularly. Such a state

has been characterized by Flourens as a continuous sleep without dreams.

The same observations have been made with regard to dogs that have been deprived of a large part of the brain.

With lowered head and dead eyes, such a dog moves about indifferent to everything taking place around him. He shows no signs of fear, envy or joy. Neither threats nor friendly speech impress him. He never partakes in the barking of other dogs and is, as a rule, mute. Only should he be hungry he might set up a howl. Although indifferent to the strongest light or sound, he is not entirely blind or deaf. At the stronger sounds he might move his head slightly. All higher life is lost, but he digests his food and all vegetative functions continue *just as* regularly as if he were in normal condition.

Observation of the effect of certain accidents and diseases intimates that man forms no exception but that the same

results would probably be obtained from similar experiments with him. Though such experiments are out of the question, we can, however, in many different ways ascertain that the soul of man is also inactive in the vegetative functions of his organism. In earliest childhood this is perfectly evident. To possess a soul that has no functions is, as far as the result is concerned, identical with possessing no soul.

If we observe a child during the very earliest period of its life we will find that it behaves essentially just as the animals referred to above. Even the child remains in the position it is given and is unable to comprehend what happens around him. The child would likewise starve to death unless food were brought to his mouth, but he swallows and digests the nourishment normally. The movements of the heart, the circulation of the blood and respiration all take place as normally as with the fully developed man during

sleep when his soul also ceases to function.

The fact that the vegetative processes of the organism are not governed and controlled by the soul may be observed by anyone also during his conscious state. In regard to respiration we may repress it only for a few minutes. A command is soon given by certain cells in the central nerve-system which *against* the soul's will brings the organ in question into action. Experience tells us that strong agitations generally disturb the vegetative processes. Sudden fear, for instance, accelerates the heart's motion. Therefore these processes take place more evenly with animals deprived of their brain just because disturbing influences from the soul are then impossible.

Thus it is certain beyond doubt that the cells not only execute but regulate and control through the central nerve-system a multitude of functions in which the soul does not take part. But just as certain it is that there are

many functions which the cells could not perform without the co-operation of the soul. Vision, hearing, smelling, tasting and feeling would be entirely meaningless to the cells without the aid of the soul. The same is the case in a high degree with the motions of the body which also require such a higher guidance. The dove could fly, the dog walk, and so forth, but the motions were relatively purposeless. The predetermined plan was lacking. The cells could assimilate the food, when brought into the body, but they could not search it in nature. Such action requires a power of combination that exceeds their measure of intelligence.

We see consequently that the cells may do without the soul in such functions as are not related to the exterior world comprehensible through our senses. Here they need the guidance of a higher, more developed intelligence. In the outside world with its more complicated relations, the soul is

to the cells very nearly what we mean by the word *Providence*. The soul performs, in the interest of the cells, such a higher, regulating and guiding function.

The organism, then, is divided into two sections, separated by a sharply defined boundary. As independent and autocratic as the cells are in one of them, is the soul in the other. This bisection in two widely separated spheres is in itself remarkable, but may be explained, if we remember that the organism is an individual composed of lower individuals. As different as these classes of individuals are in their nature and faculties, equally incongruous are also the realms in which they dwell. The cells move in the atomic and molecular world. To them the molecules and atoms appear with a clearness comparable to the plainness with which the exterior world reveals itself to us. It is natural then that the cells attend to the vegetative functions of the organism which just fall within

their sphere of life, a sphere of which the soul can obtain knowledge only indirectly by way of deductions. Equally obvious it is that only the soul can employ the organs of the body, the functions of which fall within the visible world.

We have now endeavored to obtain an understanding of the importance of the soul to the cells by depriving the latter of the direct influence of the former. This resulted from the removal of the brain, the organ by which the soul more directly expresses itself. But the soul is not actually removed from the body. It still remains in the whole cell-mass. The brain itself consists of cells, in which the soul is not present except as in all the other cells. The difference is only that the brain-cells are developed for the functions of thought, whereas the cells in the other organs are intended for their specific purposes. In order to remove the soul from the body we must remove the life from every cell. The soul, as we in-

tend to show, is inseparably connected with every particular cell-individual. But in order to understand how the cells may be at once independent of, and yet intimately united with the soul, we must first know what an organism really is. Its nature and fundamental idea is the only thing that can explain this remarkable relationship. But it is just here as to the essential qualities of an organism that the conceptions are generally very dim and vague.

Commonly the organism is thought of as a very complicated mechanism whose members and organs mutually depend upon each other. The organism is what the word implies, a tool. But every tool is intended for somebody's use. Who this one is, is not said, simply because it is considered self-evident. If it be a human organism, it is obviously the man who uses it; if it be an animal organism, it is the animal, and so on. That this is a truth, cannot be denied; but still it

expresses only half the truth and scarcely that. Every organic body is used directly by the individuals that form its building material. The human organism is a society of cells, and it is these latter that first of all use the body's organs for their purposes. But so dominating are the old ideas about the body, that even the cytologists themselves have not been able to shake them off. The cells are continually studied from man's point of view, but *what man may be from the cell's point of view is never thought of.*

We do not hereby deny all justification to the old conception. The body is also an organ for the soul. The latter, as experience shows, uses the body for its own specific purposes. But this takes place only to a somewhat limited extent. The incomparably larger part of the soul's work, cares, and endeavors, is devoted to finding means to satisfy bodily wants. But so far as the soul provides for the necessities of the body, it acts as organ for the cells.

When man believes that he is running his own errands, he is in reality carrying out the missions of those beings that compose his body. These latter demand for their purposes, if not all, yet at least the largest part of all the work the soul performs in this world.

CHAPTER IX.

The Fundamental Qualities of an Organism.

IN ORDER to illustrate the fundamental characteristics of an organic structure in general, we will begin with comparing it with what it most resembles, namely, a complicated mechanism. The likeness is so striking that the very dissimilarities become instructive.

First of all we notice the parts of which the machine is composed. What these parts are to the machine the members and organs are to the organism. Every part, like every organ, has a certain duty to perform which it incessantly repeats. The work of the machine is divided among the parts as that of the organism among the organs. As the organ, so the part of the ma-

chine can do its share only when in right position and in right order.

The most obvious similarities are now exhausted. The parts of the machine are actuated by external, but the organs by internal, forces. The organism is a living machine. No organism, whether organic or mechanic, labors for its own sake. Every such apparatus exists for somebody's use. But while those that employ a machine stand in outer relation to the same, those who utilize an organism are beings that themselves constitute the organic machine-parts. These are not composed of dead atoms, but of living individuals. The organism is a society which puts the organic machinery into service. It is the social tie that connects the individuals which otherwise would be a multitude of isolated beings.

In all organisms there are as many organs as actual wants among the individuals that compose it. Because these individuals are kindred, they have common needs and are therefore able

to use the same organ. Every particular individual requires the assistance of all the organs and must therefore stand in such relation to them all that he can utilize the work of any one. But he himself enters as a working member only in one organ, whose work is the only one he can immediately press into his service, and even this only in certain cases. All other organs stand in more or less distant relation to him. How, then, will he be able to utilize them? Only so that the organs make themselves present in his own organ, and, so to speak, reach him their different products. Like every citizen in a community, each organ ought to have a system of circulation throughout all the other organs to transfer the results of its work where it is needed. If, however, each organ were provided with such a distribution agency this would be an extravagance inconsistent with the concentration of forces that the very idea of an organism implies. Instead of many such systems we find

therefore in every organism but one, whose sole purpose is to circulate the products of the various organs, and thus, so to speak, make each organ represented in every part of the whole community. We find that every organic building is constructed in this way to suit the individuals that form its building-material, and so of course it must be, since it was built for that purpose by the same individuals.

The consequence is that the degree of development an organism possesses is closely related to the state of evolution reached by the individuals which constitute it. The more perfected the organism, the higher and more developed also are the necessities it is able to satisfy.

The way in which independent living beings build such an organic machine may be defined as "division of labor." Every organism is a union, founded on the division of labor, between a multitude of kindred individuals which thus combine their isolated

forces. But a large mass of individuals cannot merge at once into an all-embracing entity. This result can only be reached by a series of higher and lower intermediary units, each defined by its particular share of the total labor.

A closer study of the organisms will show that they all without exception are composed in this way.

The cells in any organism in nature combine into higher and higher units as follows:

The primary unions of the cells are the tissues, where all the cells perform the same function in the same way. Of these tissues is formed the nearest higher unit, the organ. As the tissue was a union of cells, the organ is a union of tissues. Then we have a system of organs. To each such higher system a more comprehensive function is assigned. By distributing the total labor among the different systems these merge into the organism which unites the whole cell-mass into one

well-organized community of working cell-individuals.

Human society is similarly composed. The difference is only that in one case the citizens are cells, and in the other they are men. Of an organism in nature we only see the members and organs, but not the cells; in human society, on the other hand, we only observe the cells or the human individual, but not the body of society. The cells combine into a solid body; humanity is spread over a surface. Human individuals, because of their greater perfection, move in space more freely and independently of each other than do the cells in their realm. These and other differences do not, however, disturb the general organic structure. This has everywhere the same fundamental qualities. Society is essentially only a vastly enlarged copy of the same model that man traces in his own bodily organism.

Through a similar division of labor the work of the community is split

into trades, corresponding to the tissues in the natural organism. As the cells in one tissue, so the men in one trade are incessantly occupied with the same work. Out of several trades are formed the social organs. A social organ consequently is a certain community or district performing a certain part of an industry. This has been called "territorial division of labor." Several such communities make up an organ-system or an industry. A few such larger units merge into the single unit, the entire mass of human individuals as a whole.

The cells of the individuals in an organism are consequently at once building-material and builders, and in their latter capacity are endowed with wants and aspirations that with natural necessity force them to organization without conscious plan or purpose. Necessity is the teacher that tells them how to organize. Some speak of a social instinct that man does or should possess; but its existence has never been

shown. On the contrary, it is only by those needs that can only be satisfied by a community that men are driven to unite socially. Similarly with the cells. Only by building up an organism are they able to satisfy their common wants. What society is to human individuals, the natural organism is to the cells. No trade or industry can be found in the state that does not serve to provide for some common want of the people, and no tissue nor organ exists in the natural organism but for satisfying collective needs of the cells. These collective needs are at the same time the higher needs of the individuals. The organism provides the power that the isolated individual does not possess. Organization allows that specializing of effort which so essentially contributes to the productivity of labor. The more limited the operations each individual has to perform, the more rapidly and perfectly are they done.

Although the cell lives in a world

inaccessible to our immediate comprehension, we still possess means to ascertain that it has the same fundamental qualities as man. We observe manifestations of life in the cell corresponding to those of sensitivity, feeling and will-power in man. The cell's comprehending faculty has been termed irritability and its power of action spontaneity. From certain physiological phenomena the conclusion has also been drawn that the cell likewise possesses memory.

CHAPTER X.

The Organic Relationship Between the Soul and the Cells.

HITHERTO only little study has been given to the spiritual qualities of the cells, and such investigations must always meet with certain insurmountable difficulties. The reason is that we only judge others by ourselves and we are therefore unable to understand the spiritual life of any being that is not one of our kin.

If a being stands higher or lower than ourselves its spiritual experiences, if not entirely different from ours, are at least limited and modified by the being's own power of comprehension. If, however, these beings show manifestations of life that we understand, we must conclude that their spiritual or mental life is correspondingly active.

Such a position we occupy with regard to the beings called cells. From the result of their activities we conclude that they, like men, are endowed with aspirations capable of the highest conceivable evolution. What economic necessities are to man, the arterial blood is to the cell. The blood is an artificial product which nature no more gives to the cell than it gives clothes, food, houses and the like to man. Nature provides the raw material and cell and man alike must learn how to adapt it for the necessities of life. This operation, however, involves great difficulties. All such artificial products stand in inverse proportion to the power of the individual. The more perfect they are the more impossible it is for the individual to produce them. Only as citizens in a community, that is, through organization, are the individuals able to produce such products as exceed their isolated forces.

Although we cannot comprehend the inner life of the cell, nor the world in

which it dwells, we are able to judge, from the wonderful perfectness of the organisms built by cells, that they have reached in their world and measured by their power a higher state of development than man. It is not only possible but highly probable that the human individuals will sometime build an organism of the same perfectness, but as yet they have not done so. The cells have long ago passed the stage of organization that characterizes human society at present.

From the fact that the first purpose of every organic structure is to serve the individuals of which it is composed, it follows that nobody, except these same individuals, can build the organism in question. Independently the cells build the human body here in time and they must do the same in the future life. The organism cannot exist in other surroundings than those for which its organs are adapted. But this adaptation can only be effected by the individuals that form the building ma-

terial of the organs, because the organs just express their relations to the world in which they exist. Thus it follows of necessity that man's resurrection or transition from one world to another must be identical with the dying cells' upbuilding of that organism which man shall possess in a future life. Any other form of resurrection is neither possible nor conceivable. It is further confirmed by the relation that exists between the soul and the cells. This relationship, as we intend to show, is such that the soul receives its entire individuality, all its forces and faculties, from the cell-organism, the previous resurrection of which therefore is an indispensable condition for man's own rise to another life.

If the mass of a body is living the body itself is alive. The whole receives its qualities from its elementary components. The organism itself is a living being. From the point of view of the building material the organism is a society composed of independently living

individuals; from the point of view of the whole again it is a living individual of higher order than the individuals that form its social side. Man is a cell in the social body, but is himself composed of lower individuals, which again consist of more primary units.

Man, considered as being possessed of a body, *is an individual composed of lower individuals.*

We now ask the question: What is the relation between the higher individual and the lower ones? This is only another and more exact form of the question: What is the relation between the soul and the body? Because, what is the body and what is the soul? The body is the sum of the lower individuals, or, in other words, it is the organized mass of cells. The soul, as the feeling, thinking and willing principle, is the real spiritual unity in this mass, or just what we denote by the word man, or the higher individual. To ask, what is the relationship between the higher individual and

its lower constituents is therefore the same as to ask, what is the relation between the soul and the cells? Take away the latter, and there is nothing left of the body. The cells mean here everything, and it is to them consequently that the soul can be thought to stand in relation.

Formerly the problem was to explain how soul and body as two substantially different entities were related to each other. They had then nothing in common, nothing to encourage an interaction. If now the relation holds between the soul and the cells we have at least commensurable quantities to deal with.

So far all is well. But now other difficulties arise. We can and must ask, how an interaction is possible between the soul and the cells even if they are formally, according to their inner nature, kindred beings? In other respects they are not so separated and different that a spiritual intercourse is inconceivable. As inaccessible as is the

inner life of the cell to man, so incontiguous is the spiritual life of man to the cell. These beings are so widely separated that they cannot possibly communicate directly with each other, and yet in order to establish a mental or spiritual interrelationship, such communication is just what is necessary.

The soul and the cells must have something in common that is of a purely spiritual nature. As the spiritual always is a comprehending substance with nothing but comprehensions as its content, the something common to both must consequently have the form of common comprehensions. Not all comprehensions, however, incite to activity and a smaller number yet call forth a co-operation of independently living individuals. But, obviously, the perceptions that concern us now must be of the latter kind. The comprehensions in general that induce a being to activity we call wants or appetites. In its desires a being con-

ceives its own ego in want of one thing or other. The feeling of discomfort, accompanying the want, naturally causes the endeavor to satisfy the want through a corresponding effort. The incitement to activity then is purely spiritual. Are the soul of man and the cells subject to such common needs, requiring their co-operation? If so, at least their wants or appetites cannot be wholly congruous. Such are only to be found in entirely similar beings. But different wants are satisfied in different ways; each requires a carefully adapted form of activity. All direct, immediate co-operation of the soul and the cells is therefore impossible. Only man with man, or cell with cell, can co-operate in the primary sense of the word.

But an indirect working alliance is not yet precluded. Though themselves different, the two beings may comprehend wants identical in substance, but not in form. The formal discrepancy would require not only different modes

of satisfying the need, but also different kinds of activity; but the common substance might yet under certain conditions so unite and interlink the different labors, that the result would show a mutual co-operation.

We shall presently see that the soul and the cells are so united with each other that *the connecting link is the organism per se.* From the point of view of the cells the organism, with its different members and organs, was nothing but the collective expressions of individual wants. Now man comprehends as his needs only the wants of the organs; in other words, the collective wants of the cells are the individual wants of the soul. Experience teaches us that the soul has no direct comprehension of the cells, but only of their organic unions. To prove this it may be sufficient to point out that before the discovery of the microscope, man knew absolutely nothing of the existence of these beings, much less that they were the all-governing forces

in his own body. But also in other ways we may ascertain that the comprehending power of the soul does not reach beyond the organs. This is apparent from the different significance the physiological processes have for the soul and for the cells. If we consider the most important of them all, our nutrition, and ask ourselves for whom the nourishment is really intended, we find that it is for the cells and for the cells alone.

The food benefits the soul only if it is utilized by the cells. But the nourishment that the soul craves does not satisfy the cells. Hunger and satisfaction are not even simultaneous in both, at least not as regards the same food. As a rule, the soul comprehends hunger when the cells are satisfied and *vice versa*. The soul's hunger ceases the moment suitable food in sufficient quantity is introduced in the stomach. But this does not help the cells. Because, if the food remained in the stomach, to the satisfaction of the soul,

the cells would soon die of starvation. The nourishment in the stomach is of the same importance to the cells as the provisions stored in the warehouse of the community are to the human individuals. These also would die from hunger if they let the victuals remain in the stores. The people must undertake to distribute, prepare and consume the food. Similarly the cells would starve to death unless they prepared the food in their common storage to suit their wants. The nourishment must be transformed into blood through the whole complicated process we call digestion. When this is done, the cells are able to satisfy their craving, and simultaneously a new hunger-feeling arises in the soul. Although it is the *same food* that satisfies both parties, it is the same food administered in different forms, at a different time, and in a different mode. We are concerned with dissimilar beings possessed of wants at once different and yet most intimately associated.

The connection is not difficult to understand. When the soul comprehends the need of the stomach, it is the collective want of the cells that comes to expression as the individual want of the soul. The different needs receive in different form an identical substance and this fact is obviously the connecting link between the soul and the cells. We might without difficulty carry out the same reasoning in regard to respiration and all the other physiological processes of the body.

From what we have said it is evident that the soul and the cells employ the body differently; but for the sake of clearness this ought perhaps to be further accentuated. The difference may be thus expressed: The soul acts with the members and organs of the body as units, whereas the cells perform the work of the organs as individuals. It would be easy to explain what this implies if we could point to similar conditions in human society. But no exactly similar institutions ex-

ist there, at least not to the same extent. They would exist if the ideal socialistic state was realized. The cells in their sphere have carried through a communism of the most rigid form. Their social organs then do not work at the cell-individual's own initiative, but only upon the command of the central power and under its guidance and control. But even in the present organization of mankind, we find a few organs which offer a suggestive comparison. Especially is this the case with the defensive organ of society, the standing army, which is entirely under the control of the central power and acts only upon its command and under its control.

As to its composition the army is a mass of independently living individuals, co-operating so as to form an organic whole. All the work this unit performs is done by the thousands of soldiers of which it is composed. If the government decides to use this organ, that is if it declares war, we

know that it leads, arranges and controls the army as one unit. It is not concerned with the soldiers as individuals, but only as organized masses.

Exactly analogous is the relation between the soul and the organs, composed of cells, in man's organism. Here also the cell-individuals perform the work of the different organs. The soul is not concerned with the cells as individuals. It governs, guides and superintends the movements of the members as elements; that is, commands the cells as organic masses.

We now consider the following facts established. The soul and the cells are different beings with different wants. They do not feel or comprehend in the same way and can therefore not have immediate perceptions of each other. However true this is on one side it is on the other just as certain that they are so intimately connected as to form the same organism through the medium of which they feel their mutual wants and therefore must have some compre-

hension of each other. This strange and, as it may seem, contradictory relation depends on the fact that the union between the soul and the cells does not extend to their whole entity. We have seen that the soul comprehended only the collective not the individual wants of the cells. Within certain defined limits therefore they have a common substance that causes their marvelous co-operation through the body.

To understand and explain this co-operation we must make clear how the soul and the cells in their *innermost* nature are united. And we shall learn this by going to the bottom of the meaning of the expression that a common substance so governs their relationship that the collective wants of the cells become the individual wants of the soul.

How then are the soul and the cells intrinsically connected?

The answer may be derived in two ways. We might take both the sub-

jective and the objective side of the wants as our point of view. If we first consider the subjective side the relationship between the soul and the cells may be stated as follows:

We have previously pointed out that in its wants a living being perceives its own ego as related to something else. This is an axiom that needs no demonstration. If now the soul comprehends the collective wants of the cells as its own, this can only mean that the soul comprehends that part of the cells' inner nature which expresses itself as their collective wants, as a part of its own ego. Again the cells within the same limits on their part comprehend the soul's inner nature as belonging to their own individuality. The connection within these limits is so intimate that they cannot comprehend themselves without at the same time comprehending each other. The soul must consequently perceive the body as its own body because the same wants that cause the cells to upbuild the soul also

belong to the soul's own entity. On the other hand the soul in conceiving itself cannot comprehend the cells as such because the identity is not extended to their whole individuality.

When a being conceives the wants of somebody else as its own wants it is at the same time directly influenced by the other. Thus the soul and the cells act upon each other throughout the body. A will of the soul takes with natural necessity the form of a common impulse upon the cells bringing them into action in the will's direction. If the soul, for instance, wishes to move an arm or a hand, a collective want is simultaneously created in the cells that form the organ in question to execute that movement.

We arrive at the same result by considering the fact that the different wants of the soul and of the cells are identical in substance. The same substance cannot enter into and define different beings unless they themselves enter in and define each other. As now

both parties comprehend wants identical in substance, the soul must necessarily belong to the cells so that it is the ground for their collective wants. But these wants were the cell-individual's higher wants, manifested in the organization of the body. The soul therefore is potentially present in the cells in the form of their higher wants and is consequently developed along with the upbuilding of the body. Only when this is ready is the soul's entity developed. The soul must then comprehend the organism as its particular body when conscious of its own ego, but the cells do not enter into the soul's entity as individuals and are therefore not present as such in man's consciousness.

For this organic co-operation the soul and the cells need no language, no signs to communicate with each other. It is not even necessary that they are aware of each other's existence. It is sufficient that each party comprehends its own wants and acts for their satis-

faction according to its own nature. If they do this their co-operation through the body receives a simple and at the same time complete explanation.

But however natural this interaction is, it is nevertheless a wonder above all wonders. The world that exists to the soul does not exist to the cells, and *vice versa*. They have an entirely different conception of the realm in which they live. They have different apprehensions, feelings and wants and perform accordingly different functions. But in spite of this they are, as we have seen, within certain limits so intimately connected that these different comprehensions and labors are interlinked with each other, regulating each other as accurately as the wheels in a clock.

CHAPTER XI.

Resurrection.

FROM the relationship existing between the soul and the cells it appears that the former cannot live a life independent of the latter. The soul receives its entire individuality, all its qualities, forces, and faculties, through the organism built by the cells, which therefore must exist before the soul can exist as the real unity in the organism. This does not mean that the soul is an empty form void of independent substance. Even before the cells have combined into an organic unit the soul is potentially present in them in the form of the wants that force them to upbuild the organism, and this organism is that of the soul, not that of the cells, of which each possesses its individual organism.

But if the soul is potentially present in the cells it is only through them that it can arise to a higher life. We have already shown in another connection that a direct transposition would be useless and meaningless. Endowed with his present organs adapted to earthly conditions, a man suddenly translated into the glories of a higher world would with seeing eyes yet see nothing, with hearing ears hear nothing and with feeling senses would feel nothing. To comprehend what there exists and happens, man's own organism must have undergone a corresponding radical transformation. He must have new, more perfect senses, higher spiritual and bodily faculties, differing from his present as far as the objects in this higher world differ from those on earth. This transfigured body can only be organized by the same beings that built it here in time. The soul is inseparably united with these beings and is where they are.

Here in time man commences with a

cell and with a cell he must begin in a future life. This first cell with which man enters his next form of existence cannot logically be any other than the first dying cell-individual. As no atom, so no elementary unit of the living spiritual body is annihilated. Viewed from our present existence death cannot mean anything to the departed cell-generations but the cessation of life and activity in the world responsive to our senses. In reality they rise to a higher evolution under different conditions and this evolution must be identical with the upbuilding of the glorified body man shall possess in a future life.

This form of death and resurrection, natural because it is founded on the idea and nature of the organism, is common to all living beings and must so be, as they are all built according to the same general plan and therefore essentially subject to the same evolutionary processes. The birth and death of the lower individuals in whole gen-

erations is known to be a universal phenomenon in every organism and we will now endeavor shortly to explain this process.

If the soul enters as a real part in every individual cell, it does not belong differently to the first generation than to the last or to the whole series of intermediary generations. But here in time man lives only in the generation existing at the present moment. The generations that in the past successively formed the spiritual substance of his body have already gone out of time and those that are coming have not yet made their entrance. Man's entity is thus split or distributed upon a series of successively existing moments, each of which contains only a certain limited part of the organism, and the latter has therefore in reality a far broader extent than is seen at present.

But time confines and restricts man not only in this, but in all respects. To take another example, we know that man possesses a multitude of different

faculties and talents. But in time he cannot utilize them all. As a member of society he devotes himself to a certain trade or profession. Now there are thousands of different possible activities and therefore thousands of different talents that every man might develop but never can, simply for lack of time. Time is not even sufficient to fully develop one human talent in one definite direction. Man has at his disposal only the present moment, and in each moment he can only think one thought, perform one act, satisfy one need. It is said that man should develop all his faculties *evenly*, but so long as he lives in time this is an impossibility. As a matter of fact man can only live this life piecemeal, and in this time-existence proper we have the explanation of the fact that man distributes his body over a series of cell-generations.

The law of the indestructibility of matter and energy is valid also in the ideal world and this necessarily since

it is a demand of thought itself.* Applied to spiritual substance, which can exist only in the form of living individuals, the law may be expressed, "All living beings are immortal." If therefore the cell-generations that in the past composed man's organism can no more be annihilated than the future generations can be created from nothing, this implies that man has an individual existence not only after but *before* his entrance into this world. If such be the case we must be able to derive and explain our earthly life from this pre-existence. Can it now be shown that man's conditions in his pre-existence are such that he needs and must go through an evolution in time? In that case history may perhaps give us a hint how to answer the question, or would this pre-existence be an entirely new thought? By no means. Pre-existence is and must be a funda-

*Björklund might here properly have referred to his previous demonstration of the fact that life has no roots in time, consequently is independent of this principle—i. e., immortal.—Translator's note.

mental idea in all religions because they all suppose that man emanated from God through an original act of creation. That the Christian religion especially has this basic idea Victor Rydberg has fully demonstrated in a treatise entitled "Man's Pre-existence."

But although we may say that all religions teach a pre-existence we do not mean that this idea has been or even could have been rightly understood. We might expect just the contrary, as pre-existence is connected with the common conception that man's soul as well as the material world was once created in time, in which case pre-existence can only mean an existence extending very far back in time. There was a time when God existed but not man, which latter, as being created, must have an *existence separate from God* even if he may in other respects be called His image.

This form of belief in pre-existence shows the same shortcomings and is subject to the same objections as the

whole orthodox theory of creation. As we can and must ask how a perfect God could create an imperfect, that is, an evolutionary world, we might also ask, why was man created with the necessity for an evolution in time when he never could develop anything but what God had implanted potentially in his being? Instead of explaining evolution this theory only makes it so much the more mysterious.

Besides this conception, however, the religious intuition has surmised that the connection between God and man is profoundly deeper and more intimate. Man does *not* have an existence separate from God. This intuitive thought, intensified in highly religious souls, has led them to preach, *that man possesses a life in God; is part of His own being, is a living member in His perfect organism.* If this be true, why, again, must man go through an evolution? Is he not as unchangeable as God Himself?

CHAPTER XII.

Man and Infinity.

IT IS the perennial honor of Sweden's greatest philosopher, Christofer Jacob Boström, to have satisfactorily explained the extremely difficult and complicated question with which our last chapter concluded. He has shown that man, exactly on the supposition that he is an eternal part of God's being, requires and must go through an evolution in time. According to Boström, religious intuition has found the truth that man is an eternal idea in God, a living member in His organism. But Boström has also understood and considered the difference implied in thinking of man as a member in God's organism and in thinking of this member as living its independent life. In the former case man possesses the same

qualities as God; in the latter, these qualities with corresponding limitations.

For an illustration of how all limited beings are incorporated in an absolute personality, Boström likes to fall back on the numerical system. Spiritual beings form a series, as it were, of lower and higher entities, where the latter contain the former pretty much as higher numbers contain the smaller. Boström distinguishes between positive and negative attributes, and means by the former those attributes without which the being cannot be thought, and which it therefore in one sense contains. So for instance in the number ten, all the previous numbers are positive attributes because ten cannot be thought without them, which, however, does not imply identity with either of the lower numbers. On the other hand all the following numbers are negative attributes to the number ten because this may well be thought without them. It contains them only

if it is considered as one point in the numerical system, in which case it has them all as attributes. Thus, still referring to the number ten, this may be considered complete within itself without considering the higher numbers, whereas if we wish to comprehend it fully we must see it as a link in the numerical system. Ten would not be the half of twenty without the latter, and so on. The existence of the higher is after all required for that of the lower as fully as the existence of the lower is necessary to that of the higher.

Because each entity is higher according as it has a larger number of the rest as its positive and a smaller number as its negative attributes, it follows that the highest entity, or Deity, has no negative attributes but only positive ones, which of course is the true meaning of the expression that God is the most perfect being.

As a lower being is more perfectly defined when considered included in a

higher, this fact must be the reason why all finite, rational beings in their evolution try to assert themselves in the higher beings, up to the highest, by whom they finally obtain their full scope and in whom only they live their complete life.

But if Boström had lived to study the modern cytology he would have found a more adequate comparison within man's organism, and one that perhaps in several respects would have modified his conception of the world of divine ideas.

God is related to man as man is, not to the cell, but to the lower units of which the cell is composed. Between God and man there is at least one other organism that we know of, namely humanity. But if we overlook this and for simplicity's sake imagine the relationship as that of man to cell it should be evident from what has been previously said that man is and must be something else to God than he is to himself.

To God he is what the cell is to man, a living part in His organism, and in this capacity he possesses all the perfect qualities of that organism. Living his independent life, man is in the same position as the cell in his own being, when the cell is thought of as living the life it is confined to by its less perfect organism.

Although limited to that life the cell may literally be said to be man's image—but an image of a very singular kind. The cell does not reproduce man's traits as does a photograph or a statue, but within its lower realm it mirrors the fundamental qualities of the original on a very reduced scale.

These limitations can not be conceived by the cell as such because they are natural to it and belong to its entity. The cell is and must feel itself as perfect in its realm as man in his. Only if the cell could compare its conditions with man's, these limitations would be apparent to it, and such a comparison the cell really undertakes

within certain limits. Into each feeling of want enters a comparison between the possessed and the desired. In the higher wants, then, that drive the cells to upbuild man's organism we have a manifestation of such a comparing power of the cell. Experience shows that the cell may live in a veritable natural state, but it is also, because of the presence of the soul in its innermost being, capable of a high culture for the development of which it receives constant impulses and stimulations from the soul.

In the same sense man may be said to be the image of God. Living in the world and the natural state, to which he is confined by his relatively imperfect organism, man has the qualities of God with corresponding limitations. But even in this state he feels the spirit of God present in him because he is an original part of God's own organism. In his conscience and in his religious feeling man not only comprehends distinctly the presence of God in his inner

being but constantly receives also impulses, incitements and inspirations to develop that perfect life and heavenly kingdom, of which he is called by his high origin and divine birth to become a citizen.

What the conscience and the religious feelings are to the will, the logical laws of thinking are to the reason, and in the latter, man finds God as immediately present as in the former. Indeed, logical laws are the form in which God himself exists.

Because of God's presence in the eternal laws of our thinking, man is able to appraise himself and his condition with an absolute measure, and can in this way obtain a certain knowledge of God's world and of his perfect qualities. He has only to abstract all wants and limitations from such qualities as have a positive content, because lack of want is perfectness. We shall now undertake such a valuation with respect to man's need of evolution here in time, which quality, as all the oth-

ers, can be explained and understood only through its connection with the corresponding quality in the absolute being.

It is as natural to God to be without an origin and an evolution as it is to man to have them, and we might therefore ask how man in this respect can have anything in common with God, a condition which, as we remember, was indispensable for any comparison whatever. To make this point clear we may express ourselves in a more familiar way. We might speak of time and existence in time, instead of origin and evolution, as the latter are only forms of time.

Is there then a moment in time that has a corresponding meaning for God and the limitations of which we must abstract in order to understand God's quality of being eternal? It is by analyzing the relation between time and eternity that we hope to receive an answer to the question why man must undergo an evolution in time.

The most conspicuous want in all that exists in time is its lack of duration; everything has a beginning and an end. With this lack of duration a corresponding lack of reality follows. The real is real, only as long as it lasts or only in the present moment. Everything past has ceased to exist and is therefore no longer real, and the future is unreal because it has not entered the present.

The real in time is identical with the present, which therefore must be the moment most like eternity and the limitations of which we have to remove.

First of all, the present in time suffers the want of ceasing and sinking back into the past, into unreality. We can overcome this only by raising everything past from its grave, so to speak, and drawing it simultaneously into the present. To the eternally present, nothing past, ending or ceasing can exist.

On the other hand the present in

time suffers the same want in the opposite direction, inasmuch as everything future is excluded therefrom and this future growing reality must therefore be drawn into the eternal. Neither past nor future can exist to God; He lives life undividedly, without limitations, and needs not, as man, plot out his existence in a series of moments. Eternity then is not identical with unending time; it is a different form of existence, related to time as the perfect to the imperfect.

Difficult as it is to explain what eternity implies as the perfect form of existence, it is no less difficult to comprehend the infinite wealth of content that such a form includes. We will therefore give a few brief suggestions in this direction.

How poor in content is everything present to man, and likewise how defective and unsatisfactory is his whole life here in time. As a matter of fact we can in each moment only think one thought, perform one act, satisfy one

existent personality and is then no more identical with God than the cell is with man.

Man as an entity for himself must have the natural limitations of the part. Conceived by God man is eternal in the divine sense, but conceived by himself man's eternal life is clothed in the limitations we call time. The eternal is a constant present without beginning or end, without past or future. What is present to man must suffer these limitations; in other words, man must be born, must go through an evolution, or what is the same, become to himself what he has been eternally to God. In this respect man's relation to God may be compared to the relation of a newborn child to its earthly father. To him the nature and scope of the child is perfectly clear, but the child is unconscious of it and must awaken to an understanding thereof, that is to say, must become to itself what it already is to its father.

Living beings form a continuous

series in the absolute organism. This series is such that the higher beings form the conditions and supports of the lower. This connection must be entirely reversed during evolution itself, which naturally proceeds from the lower to the higher. In time therefore the generation and development of the lower beings must precede that of the higher. We have also seen that the evolution of the former is identical with the upbuilding of the organisms of the latter, and we understand now that the whole process *must* essentially follow the course which, as we have previously shown, it does in fact, actually take.

It is further the inherent idea of time that man's eternal entity cannot appear whole and undivided. He must plot it out along a series of successive moments which make room for only one cell-generation at a time. As the cell's entity again has a less comprehensive content than man's, its lifetime must be correspondingly shorter.

CHAPTER XIII.

Recapitulation.

THE theory we have here advanced may naturally seem startling; for what could be more foreign to common conceptions than the assertion that science today gives us full evidence of a death and a resurrection that commence during our life in time? Considering this, it may be appropriate to recapitulate the salient points in our line of thought.

From prehistoric times up to our own days all people at all stages of evolution have to a man been convinced that the body in some way and in some form contains an imperishable and essential part which man cannot do without in a future life. With this intuitive and purely instinctive faith as a basis, the steps in the following historical evolu-

tion become fully natural and logical consequences.

It is not to be wondered at that this eternal part should at first sight be considered identical with the material body. Therefore it was also natural that a cult of the dead would be the stage where all people begin. Man sees however that death as a matter of fact separates the immortal soul from that body which the soul cannot dispense with. The separation cannot be complete because the ties cannot be severed. The soul then is attached to the body even after death. Consequently it must be the duty of the surviving to provide the body of the deceased with a dwelling as good and suitable as possible and also with the provisions that the body needs.

A man could not, however, find such a condition satisfactory for any length of time, and the thought of death gnaws and torments him. Shall the soul never regain possession of the body without which even the glories of

heaven are pale and shadowy? The doctrine of the bodily resurrection on the day of judgment must be the next great progress in our philosophy of life.

But unusually gifted persons, bent towards idealism, had already felt instinctively that it was not the exterior, material covering that was indispensable to the soul. Man possessed also another, a spiritual body which the soul could immediately transfer to another life. We gain a glimpse of the vividness of this intuition in large groups of men, when we remember that the survivors even sought to annihilate the material body by the flames of the pyre in order to liberate the deceased from his earthly ties. The great masses of the population could not rise to this ideal conception, and we therefore find the two fundamental ideas prevailing side by side.

Here the two first epochs in man's history end. They show us the intimate connection between religious con-

ceptions and man's understanding of the exterior world in which he lives and acts. The following stage commences logically with the great advancement of the natural sciences. Chemistry partly lifts the veil that hides the innermost nature of matter, and at the dawn of the new science the old ideas concerning the nature of the body disappear like the shadows of night at the rising of the sun.

A bodily resurrection on doomsday is impossible because every dead body sooner or later arises and takes part in the circulation of matter, so that on the day of judgment it might be found that the same materials had entered over and over again into the composition of a variety of human bodies. It is also a fact that man changes his material clothing several times even during his earthly life. But the belief in the essential value of the body is too deeply rooted to give away entirely and so we meet it again in the modern materialism which perhaps may be said

to emphasize the significance of the body even more than the cult of the dead did in ancient time.

But while materialism claims as its own the consequences of the revolutionary work of chemistry, biology lays the firm foundation for a new and higher development of religious conceptions. Biology discovers and proves the existence of that spiritual body which humanity has surmised since prehistoric times. It is to this extraordinarily important fact that we desired to call attention. We have endeavored to draw its consequences only as regards the cell-generations which successively rise and die in the human body as in human society. Now when it can be shown that these dying generations are eternal and imperishable parts of man's own nature, the conception of death and resurrection we have here advanced must be the only possible one. The hitherto common ideas regarding the translation of man to another world have upon closer study

been found as naïve as they are unnatural, because any such direct transposition of man's entity is impossible and unthinkable.

But however simple and scientifically natural the theory here proposed, it could not have appeared at a much earlier date. It requires not only the results of modern cytology but also the widening of the idea of immortality which natural science suggests and overwhelmingly proves. It presupposes also the law of evolution we have endeavored to make clear, namely, that beings endowed with common wants and existing in similar surroundings and conditions cannot develop, except by the upbuilding of an organism, and thus entering as organic members in an individual of higher order than themselves. From these premises we might have deduced our theory of death and resurrection and yet the whole process would still have seemed mysterious and inexplicable but for the work of our great predecessor,

Christofer Jacob Boström, that Plato of the North, so often misunderstood by his contemporaries, or at least more known on account of certain possible deficiencies in his system than because of its imperishable merits.

Idealism and materialism have hitherto stood as two absolutely incompatible contrasts and the fierce battle that continuously rages, even in our days, between the two world-conceptions can, according to common notions, only be brought to an end through the complete defeat of one of the parties. We have endeavored to show that both these philosophies have common deficiencies, but that each of them possesses an essential part of truth. We cannot deny idealism the merit of having looked far deeper into the nature of things and phenomena. While admitting this we cannot be blind to the fact that this philosophy has left at least one fact of nearly overwhelming importance totally unexplained. If it be true that the soul is the essential

part of man and is that to which alone immortality is granted, how then shall we account for the fact that the soul's evolution, properly the one principal object of man, must stand aside for the body to such an extent that the body utilizes, if not all yet at least the largest part of man's time and energy? To materialism this reply is given, but then again this philosophy has been unable to answer all those questions which idealism alone could satisfactorily explain.

Now at last we understand the reason for these contradictions. The two world-conceptions suffer the same essential deficiency of having overlooked the fact that the body contains a spiritual organism, of the same importance to man's future life as to his present. In the theory here proposed materialism in a purified form melts into idealism, which latter thus receives the supplement it hitherto has lacked as a universal, satisfactory world-explanation. We have barely outlined this

new, organic idealism and have treated it somewhat more extensively only with reference to death and resurrection. But also on this point our work, as all human effort, is only piecemeal labor. As soon as we have advanced one step, other entirely new questions arise. We already discern boundless expanses of problems in the same direction and shall here point out one example. The organic changes, characterizing old age and preceding the so-called natural death, are comparatively well studied and known. But in spite of this, natural science is unable to tell us the underlying cause in the inner nature of the organism, and it is even admitted that we know no reason why the process should not follow an entirely opposite course. From our point of view man has an individual content larger than that included in the successive moments of time, and death should normally enter with the translation of the last cell-generation. It is true that as civilization advances man's

lifetime is constantly increasing, so that we may look forward to a time when most men will die a natural death. But if we meet a premature death, as is now generally the case, can this, and other disturbing interruptions in the natural process, afterwards be repaired? Let us hope that this is possible, but a decisive answer we cannot give. Our conviction is that God does not interfere to help man either in the transition itself or in a future life in any other way than he does here in time. Certainly the clerical orthodoxy has rightly understood the divine guidance in its teaching of God's general providence, comprising the whole creation, His special providence in regard to mankind, and His most particular providence, limited to the faithful; that is, to those that let themselves be governed by the divine will. Critical experience has never discovered any exterior, occasional interference, which moreover is utterly impossible. God is present and active in

the eternal and unchangeable laws of nature and spirit. Sin and punishment, virtue and reward, are connected with each other as reason and conclusion, cause and effect. Man is himself the cause of his acts and they bring their inevitable consequences. The man therefore who consciously and purposely distorts his own natural evolution or that of others stands before himself and before his fellow men burdened with a terrible responsibility.

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